6318

the exchange value of the rupee to 1*s.* 4*d.*, and then introduce a gold standard (though not necessarily a gold currency) at the rate of Rs. 15 = £1. This policy has been completely successful. From 1899 onwards the value of the rupee has been maintained, with insignificant fluctuations, at the proposed rate of 1*s.* 4*d.*; and consequently since that date three rupees have been equivalent to two rupees before 1873. For the intermediate period, between 1873 and 1899, it is manifestly impossible to adopt any fixed sterling value for a constantly changing rupee. But since 1899, if it is desired to convert rupees into sterling, not only must the final cipher be struck off (as before 1873), but also one-third must be subtracted from the result. Thus Rs. 1,000 = £100 − $\frac{1}{3}$ = (about) £67.

Another matter in connexion with the expression of money statements in terms of rupees requires to be explained. The method of numerical notation in India differs from that which prevails throughout Europe. Large numbers are not punctuated in hundreds of thousands and millions, but in lakhs and crores. A lakh is one hundred thousand (written out as 1,00,000), and a crore is one hundred lakhs or ten millions (written out as 1,00,00,000). Consequently, according to the exchange value of the rupee, a lakh of rupees (Rs. 1,00,000) may be read as the equivalent of £10,000 before 1873, and as the equivalent of (about) £6,667 after 1899; while a crore of rupees (Rs. 1,00,00,000) may similarly be read as the equivalent of £1,000,000 before 1873, and as the equivalent of (about) £666,667 after 1899.

Finally, it should be mentioned that the rupee is divided into 16 annas, a fraction commonly used for many purposes by both natives and Europeans. The anna was formerly reckoned as 1½*d.*; it may now be considered as exactly corresponding to 1*d.* The anna is again subdivided into 12 pies.

The various systems of weights used in India combine uniformity of scale with immense variations in the weight of units. The scale used generally throughout Northern India, and less commonly in Madras and Bombay, may be thus expressed: one maund = 40 seers; one seer = 16 chittaks or 80 tolas. The actual weight of a seer varies greatly from District to District, and even from village to village; but in the standard system the tola is 180 grains Troy (the exact weight of the rupee), and the seer thus weighs 2·057 lb., and the maund 82·28 lb. This standard is used in official reports and throughout the *Gazetteer*.

For calculating retail prices, the universal custom in India is to express them in terms of seers to the rupee. Thus, when prices change, what varies is not the amount of money to be paid for the

same quantity, but the quantity to be obtained for the same amount of money. In other words, prices in India are quantity prices, not money prices. When the figure of quantity goes up, this of course means that the price has gone down, which is at first sight perplexing to an English reader. It may, however, be mentioned that quantity prices are not altogether unknown in England, especially at small shops, where pennyworths of many groceries can be bought. Eggs, likewise, are commonly sold at a varying number for the shilling. If it be desired to convert quantity prices from Indian into English denominations without having recourse to money prices (which would often be misleading), the following scale may be adopted—based upon the assumptions that a seer is exactly 2 lb., and that the value of the rupee remains constant at 1*s.* 4*d.*: 1 seer per rupee = (about) 3 lb. for 2*s.*; 2 seers per rupee = (about) 6 lb. for 2*s.*; and so on.

The name of the unit for square measurement in India generally is the *bīgha*, which varies greatly in different parts of the country. But areas have always been expressed throughout the *Gazetteer* either in square miles or in acres.

MAPS

IMPERIAL GAZETTEER OF INDIA

VOLUME XVI

Kotchāndpur.—Town in the Jhenida subdivision of Jessore District, Bengal, situated in 23° 25′ N. and 89° 1′ E., on the left bank of the Kabadak river. Population (1901), 9,065. Kotchāndpur is the largest seat of the sugar trade and manufacture in the District. It was constituted a municipality in 1883. The income during the decade ending 1901–2 averaged Rs. 6,500, and the expenditure Rs. 5,900. In 1903–4 the income was Rs. 7,000, mainly from a tax on persons (or property tax) and a tax on vehicles; and the expenditure was Rs. 6,000.

Kotda (or Sāngāni).—Petty State in the Kāthiāwār Political Agency, Bombay, lying between 21° 54′ and 22° 4′ N. and 70° 51′ and 71° 8′ E., with an area of 74 square miles. The population in 1901 was 8,835, residing in 20 villages. The revenue in 1903–4 was Rs. 91,500, and the cultivated area 76 square miles. The State ranks as a fourth-class State of Kāthiāwār. The founder was Sāngojī, a son of Kumbhojī of Gondal. His grandsons Jasojī and Sartanjī in 1750 conquered Kotda from the Kāthis, and removed their capital thither from Ardoi. Dying without issue, they were succeeded by their younger brother Devojī, whose descendant is the present chief.

Kotda Nāyāni.—Petty State in KĀTHIĀWĀR, Bombay.

Kotda Pitha.—Petty State in KĀTHIĀWĀR, Bombay.

Kotdwāra.—Town in Garhwāl District, United Provinces, situated at the foot of the hills, in 29° 45′ N. and 78° 32′ E., close to the terminus of a branch of the Oudh and Rohilkhand Railway, and on the small river Khoh. Population (1901), 1,029. This is the most important mart in the District, supplying the south of Garhwāl with cotton cloth, sugar, salt, cooking utensils, and miscellaneous articles imported from the plains. It is also the chief centre and exchange for the Tibetan trade. The Bhotiās bring down borax, and take back pulse, sugar, tobacco, and cloth. Forest produce, mustard, rapeseed, chillies, and turmeric are exported to the plains. Kotdwāra is the head-quarters of the Garhwāl Bhābar, and contains a police station,

a dispensary, and a branch of the American Methodist Mission. It is administered under Act XX of 1856, with an income of about Rs. 1,300.

Kotebetta.—Mountain in Coorg, Southern India, about 9 miles north of Mercāra, 5,375 feet high. Its base covers a large extent of country. The summit is divided into two peaks, one rather pointed, the Harangalbetta, and the other broad, forming a flat table-land.

Kotgarh.—*Pargana* in the sub-*tahsīl* of KOTKHAI-*cum*-KOTGARH, Simla District, Punjab.

Kothāria.—Chief town of an estate of the same name in the State of Udaipur, Rājputāna, situated in 24° 58′ N. and 73° 52′ E., on the right bank of the Banās, about 30 miles north-east of Udaipur city. Population (1901), 1,586. The estate, which consists of 81 villages, is held by one of the first-class nobles of Mewār, who is styled Rāwat and is a Chauhān Rājput. The founder of the Kothāria family was Mānik Chand, who fought for Rānā Sangrām Singh against Bābar in 1527. The income of the estate is about Rs. 32,000, and a tribute of Rs. 1,200 is paid to the Darbār.

Kothāria.—Petty State in KĀTHIĀWĀR, Bombay.

Kothī.—Petty *sanad* State in Central India, under the Political Agent in Baghelkhand, with an area of about 169 square miles, surrounding the town of the same name. The chief is a Baghel Rājput, one Jagat Rāj Singh Baghel having driven out the original Bhar chief and founded the *jāgīr*. When the Bundelās rose to power in the eighteenth century under Chhatarsāl, the Kothī chiefs became tributary to Pannā, but maintained their independence throughout the domination of Alī Bahādur. On the establishment of British supremacy Kothī was held to be subordinate to Pannā, and was originally described as such in the *sanad* granted to the Pannā chief in 1807. In view, however, of the continued independence of the estate, a fresh *sanad* was granted in 1810 to Rais Lāl Duniyā-pati Singh, making him directly dependent on the British Government. An adoption *sanad* was granted him in 1862. In recognition of his loyalty, public spirit, and benevolence, the title of Rājā Bahādur was granted in 1878, as an hereditary distinction, to Rao Bahādur Singh. The present chief is Rājā Bahādur Avadhendra Singh, who succeeded in 1895.

The population has been: (1881) 11,368, (1891) 22,656, and (1901) 19,112, or 113 persons per square mile. Hindus number 15,939, or 83 per cent.; and Animists (chiefly Gonds), 2,864, or 15 per cent. There are 75 villages.

The soil of the State is fairly fertile, and produces good crops of all the ordinary grains. Of the total area, 58 square miles, or 34 per cent., are cultivated; 22 square miles are cultivable but not cultivated; and the rest is jungle and waste. The total revenue is Rs. 26,000, of

which Rs. 24,000 is derived from land. An irregular force of 223 infantry and 30 cavalry is maintained.

The capital, Kothī, is situated in 24° 46′ N. and 80° 47′ E., 6 miles west of Jaitwār station on the Jubbulpore-Allahābād branch of the East Indian Railway, 104 miles distant from Allahābād. Population (1901), 2,297.

Kothideh.—*Bhūmiāt* in the Bhopāwar Agency, Central India.

Koti.—Fief of the Keonthal State, Punjab, lying between 31° 2′ and 31° 11′ N. and 77° 13′ and 77° 21′ E., with an area of 50 square miles. The population in 1901 was 7,959, and the revenue is about Rs. 25,000. A tribute of Rs. 500 is paid to the Keonthal State. The present chief, Rānā Raghubīr Chand, exercises full powers, but sentences of death require the confirmation of the Superintendent, Simla Hill States.

Kot Kapūra.—Head-quarters of the Kot Kapūra *tahsīl*, Farīdkot State, Punjab, situated in 30° 35′ N. and 74° 52′ E., 7 miles from Farīdkot town, on the Ferozepore-Bhatinda branch of the North-Western Railway, and also on the Rājputāna-Mālwā narrow-gauge line which runs west from Kot Kapūra to the terminus at Fāzilka. Population (1901), 9,519. Formerly a mere village, the town was founded by Chaudhri Kapūra Singh, who induced people from Kot Isa Khān, an ancient township, now in Ferozepore District, to settle in the place. Kapūra Singh incurred the jealousy of Isa Khān, the imperial governor of Kot Isa Khān, and was put to death by him in 1708. Kot Kapūra then became the capital of Chaudhri Jodh Singh, who in 1766 built a fort near the town, but in the following year he fell in battle with Rājā Amar Singh of Patiāla. It eventually came under the control of Mahārājā Ranjīt Singh, and was only restored to the Farīdkot State in 1847. The town has a considerable trade in grain and a fine market.

Kotkhai-*cum*-**Kotgarh** (*Kotguru*).—These two tracts form a sub-*tahsīl* of Simla District, Punjab, lying between 31° 4′ and 31° 22′ N. and 77° 29′ and 77° 43′ E., with an area of 52 square miles. It is bounded on all sides by the Simla Hill States. The population in 1901 was 10,683, compared with 11,581 in 1891. Kotkhai is the head-quarters. There are ten villages, and the land revenue and cesses in 1903–4 amounted to Rs. 14,000. The sub-*tahsīl* lies entirely in the hills, which, in Kotkhai especially, are covered with forests. Kotgarh stands on a spur of the Hātu range overlooking the Sutlej.

Kot Pūtli.—Chief town of a *pargana* of the same name in the Torāwati *nizāmat* of the State of Jaipur, Rājputāna, belonging to the Rājā of Khetri, situated in 27° 42′ N. and 76° 12′ E., about 60 miles north-east of Jaipur city, and close to the Sābi, or Sāhibi, river on the Alwar border. It is so called from its being composed of the town of

Kot and the village of Pūtli. Population (1901), 8,439. The town possesses a fort and other strong positions, which were of great importance when held by the Marāthās; a combined post and telegraph office; several schools; and the Victoria Jubilee Hospital, which has accommodation for four in-patients. The *pargana* and town of Kot Pūtli were first granted in 1803 by Lord Lake to Rājā Abhai Singh of Khetri, on the *istimrār* tenure, subject to an annual payment of Rs. 20,000, as a reward for military services rendered against the Marāthās, notably in an engagement by British troops under Colonel Monson with Sindhia's army on the banks of the Chambal. In 1806 the *pargana* was made over to the Rājā as a free gift in perpetuity. In 1857 the Jaipur troops, not content with occupying Khetri, laid siege to and captured Kot Pūtli, a proceeding disapproved by the British Government, who ordered its restoration. A special survey and settlement of the *pargana* were made in 1889 by a British officer deputed at the request of the Rājā. The area is 290 square miles, and the annual revenue about 1·4 lakhs. From Bhainslāna, 8 miles to the south-west of the town, a black marble is obtained, which is much used by statuaries and for inlaying work.

Kotra.—Cantonment in the south-west of the State of Udaipur, Rājputāna, situated in 24° 22′ N. and 73° 11′ E., about 38 miles south-west of Udaipur city, and 34 miles south-east of Rohera station on the Rājputāna-Mālwā Railway. A detachment (two companies) of the Mewār Bhīl Corps is quartered here, and the officer commanding these is Assistant to the Political Superintendent of the Hilly Tracts (*see* KHERWĀRA). Kotra is situated in a small valley near the confluence of the Wākal and Sābarmatī rivers, and is surrounded by high, well-wooded hills which, on the east, attain an elevation of over 3,000 feet above the sea. It contains a primary vernacular school attended by about 20 boys, a small hospital for the detachment, and another for the civil population. The latter, maintained partly by Government and partly from Local funds, has accommodation for eight in-patients. The Kotra district or *bhūmiāt* consists of 242 villages, with 16,738 inhabitants, more than two-thirds of whom are Bhīls. These villages are owned by the three Girāsia chiefs of Jura, Oghna, and Panarwā, who pay a small tribute or quit-rent to the Mewār Darbār.

Kotrang.—Town in the Serampore subdivision of Hooghly District, Bengal, situated in 22° 41′ N. and 88° 21 E., on the right bank of the Hooghly river. Population (1901), 5,944. Bricks, *surki*, and tiles are made in large quantities, and rope and string are also manufactured. Kotrang was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 4,100 and Rs. 3,800 respectively. In 1903–4 the income was Rs. 5,500,

half of which was derived from a tax on persons; and the expenditure was Rs. 4,650.

Kotri Subdivision.—Subdivision of Karāchi District, Sind, Bombay, consisting of the KOTRI *tāluka* (including the Mānjhand and Kohistān *mahāls*).

Kotri Tāluka.—*Tāluka* of Karāchi District, Sind, Bombay, lying between 24° 58′ and 26° 22′ N. and 67° 55′ and 68° 29′ E., with an area of 3,291 square miles, including the Kohistān and Mānjhand *mahāls*. Population decreased from 72,224 in 1891 to 70,407 in 1901. The density is much below the District average, being only 21 persons per square mile. There are 64 villages and 2 towns, KOTRI (population, 7,617), the head-quarters of the *tāluka*, and Mānjhand (2,862). The land revenue and cesses in 1903–4 amounted to Rs. 94,000. The *tāluka* is divided into two distinct portions: a hilly plateau known as Band Virah Tappa, which forms a part of Kohistān, and a narrow strip of alluvial soil lying between the hilly tract and the Indus. Five canals supply water for irrigation, and the principal crops are *jowār*, *bājra*, rice, *til*, cotton, and wheat.

Kotri Town.—Head-quarters of the *tāluka* of the same name, Karāchi District, Sind, Bombay, situated in 25° 22′ N. and 68° 22′ E., on the right bank of the Indus, here confined by a tolerably permanent bank. Population (1901), 7,617. Kotri has been placed in considerable danger by sudden and violent inundations of the Bāran mountain torrent, to protect it from which a dam was erected some years since. It is the southern junction of the branches of the North-Western Railway, running down either side of the Indus, which is here crossed by a fine railway bridge. The Indus Steam Flotilla formerly had its head-quarters at Kotri, with a large floating dock for the repair of its steamers. Since the connexion of the railway in the Indus valley with the general railway system of India, the flotilla has been abolished, and its fleet of steamers sold; but there is still a considerable boat traffic. The town is within the *jāgīr* of Malik Sardār Khān, chief of the Nūmria or 'nine men' clan. Kotri was an unimportant village before the British conquest, except in a military point of view; it served in 1839 as an encamping place of the Bombay division of the army advancing upon Afghānistān. The municipality, established in 1854, had an average income during the decade ending 1901 of about Rs. 18,000. In 1903–4 the income was about Rs. 15,500. There was an epidemic of cholera in 1879, since which date great attention has been paid to sanitary arrangements. The town contains a Subordinate Judge's court, a dispensary, six schools for boys with an average daily attendance of 532, and two schools for girls with an attendance of 139 pupils.

Kottapatam (*Allūru-Kottapatnam*).—Town in the Ongole *tāluk*

of Guntūr District, Madras, situated in 15° 25′ N. and 80° 10′ E., on the seashore, about 160 miles north of Madras city and 10 miles south-east of Ongole town. Population (1901), 7,626. The place was once a Union, but is so no longer. It is a well-built town, the streets and houses being constructed with unusual symmetry. At one time it was an important seaport where ships used to call. After the construction of the BUCKINGHAM CANAL the port suffered; and when the East Coast Railway was opened, the place lost all its commercial importance, with the result that a large number of its inhabitants have settled in Madras and elsewhere. The majority of the population now consist of Komatis. The story goes that about 160 years ago Padarti, which is at a distance of about 1½ miles from Kottapatam, was an important sea-port. A quarrel arose there between the Balijās and the Komatis, in consequence of which, with the permission of the local Rājās Maddu-pati Rāmachandra Rāju and Maddupati Bhadra Rāju, the Komatis took themselves off and built the town of Kottapatam. Padarti then fell on evil days and Kottapatam rose to prominence. Two temples were constructed, dedicated to Vishnu and to Siva, and big wooden cars with elaborate carvings on them were made for the festivals. The place is now noted for its extensive cultivation of *rāgi* (*Eleusine coracana*) and its casuarina groves. It exports vegetables, raw fish, and firewood to Ongole.

Kottār (the *Kottiara Metropolis* of Ptolemy; the *Kottara* of the Peutinger Tables; the *Mummudi Cholapuram* of the Chola period). —Suburb of Nāgercoil town, in the Agastīswaram *tāluk* of Travancore State, Madras, situated in 8° 10′ N. and 77° 26′ E. Population (1901), 3,747. Formerly an independent town with considerable traffic, visited by merchants from far and near, it is still the chief trading centre in southern Travancore. Weaving is largely carried on, and cloths of very fine texture are manufactured. It contains a Roman Catholic church and an English high school.

Kottayam Tāluk.—*Tāluk* in the north of Malabar District, Madras, lying between 11° 41′ and 12° 6′ N. and 75° 27′ and 75° 56′ E., with an area of 481 square miles. It contains 28 *amsams*, or parishes. The population increased from 195,485 in 1891 to 209,516 in 1901. The land revenue demand in 1903–4 amounted to Rs. 1,87,000. The only place of importance is TELLICHERRY (population, 27,883), the head-quarters. The *tāluk* is shut in on the east by the Western Ghāts, from which it drops rapidly down to the Indian Ocean on the west. Parallel to the coast are extensive terraces of laterite, barren themselves, but cut through by ravines and broken ground on which both trees and crops flourish luxuriantly, providing the fertile appearance which is such a charm in this District.

Kottayam Town.—Head-quarters of the *tāluk* of the same name

in Travancore State, Madras, situated in 9° 36′ N. and 76° 31′ E., on the banks of the Mīnachil river which runs into the Vembanād lake, connected with the great Cochin estuary. Population (1901), 17,552, consisting of 9,414 Hindus, 672 Musalmāns, and 7,466 Christians. The place is a centre of the Syrian Christian community, whose church here is one of the most ancient on the west coast. It contains two high schools owned by the Syrian Bishops, which are known as the Mar Dionysius and Mar Thoma seminaries. The Church Missionary Society has been at work here since 1816, and owns a flourishing college and a high school. There are several printing presses, and seven newspapers and journals are published in Malayālam. Standing on the threshold of the communications with the Pīrmed range of hills, the town serves as a convenient mart for the exchange of goods.

Kottūru.—Town in the Kūdligi *tāluk* of Bellary District, Madras, situated in 14° 49′ N. and 76° 14′ E. Population (1901), 6,996. It is a centre of the Lingāyats, who form a very large proportion of the population. It is sanctified in their eyes by the exploits of a *gurū* of their sect, named Basappa Lingaswāmi, who lived, taught, and eventually died within it at some date which is not accurately known. A long *purāna* in Kanarese gives an account of him, but it is legendary rather than historical, and is of no value to the searcher after facts. His tomb is in a large rectangular stone building on the eastern side of the town. It is enclosed all round with granite walls, parts of which are carved (the carving being sometimes coloured, which is unusual in these parts), and is supported by granite pillars, some of which are well sculptured. West of the main entrance stands an almost shapeless image, said to represent Gajalakshmī, which when removed from its upright position and laid upon the ground is reputed to have great efficacy in difficult cases of child-birth. Basappa Lingaswāmi, or Kotra (Kottūru) Basappa as he is called locally, is worshipped in the big temple in the middle of the town, known as Kotra Basappa's temple. Kotra and its allied forms Kotri, Kotravva, Kotrappa, &c., are still the most popular names in the town for boys, and girls are similarly called Kotramma, Kotri Basamma, &c. The shrine used apparently to be dedicated to Vīrabhadra, and it is said that the image of this god still stands behind the Lingāyat emblem. The Lingāyats among the *poligārs* of Harpanahalli are said to have added to the temple, and one of them gave it a palanquin decorated with ivory, which is still preserved. Basappa, says the story, came to Kottūru when it was a stronghold of the Jains, vanquished them in controversy, converted them to the Lingāyat faith, and set up a *lingam* in their principal temple. This temple is known as the Murukallu-matha, or 'three-stone-*math*,' each side of each of its three shrines being built of three large blocks of stone. It is an unusually good specimen of an un-

doubtedly Jain temple, and has three separate shrines, facing respectively north, east, and south, and all opening on to a central chamber in which the image now stands. The only industry is the weaving of cotton cloths, most of which is in the hands of the Lingāyats. But the place is a considerable centre of commerce, and its importance will doubtless receive a great impetus now that the railway from Hospet has been completed.

Kotwar.—Hill in the Jashpur State, Central Provinces, situated in 23° 9′ N. and 83° 57′ E., about 9 miles north-east of Sanna; 3,393 feet above sea-level.

Kovilam.—Village in Chingleput District, Madras. *See* COVELONG.

Kovilpatti.—Village in Tinnevelly District, Madras. *See* KOILPATTI.

Krishna.—District, river, and canal in Madras. *See* KISTNA.

Krishnagar Subdivision.—Head-quarters subdivision of Nadiā District, Bengal, lying between 23° 17′ and 23° 49′ N., and 88° 9′ and 88° 48′ E., with an area of 701 square miles. The subdivision consists of a wide alluvial plain, bounded on the west by the Bhāgīrathi and intersected by the Jalangī, which flows past the head-quarters station and then joins the Bhāgīrathi. The population increased from 349,007 in 1891 to 361,333 in 1901, the density being 515 persons per square mile. The subdivision contains two towns, KRISHNAGAR (population, 24,547), the head-quarters of the District and of the subdivision, and NABADWĪP (10,880); and 740 villages. The famous battle-field of PLASSEY lies at the extreme north of the subdivision.

Krishnagar Town.—Head-quarters of Nadiā District, Bengal, situated in 23° 24′ N. and 88° 31′ E., on the left bank of the Jalangī river. Population (1901), 24,547; it has been slowly decreasing since 1872, when it was 26,750, owing to the ravages of fever, for which the town is notorious. Krishnagar is the residence of the Rājās of Nadiā. It is the seat of a considerable trade, and is noted for its manufacture of coloured clay figures. It was constituted a municipality in 1864. The income during the decade ending 1901–2 averaged Rs. 38,000, and the expenditure Rs. 36,000. In 1903–4 the income was Rs. 48,000, chiefly derived from a tax on houses and lands (Rs. 22,000), and a conservancy rate (Rs. 11,000); and the expenditure was Rs. 40,000. The old bed of the Anjonā river has recently been excavated in order to improve the drainage, a loan having been taken from Government for the purpose.

Krishnagar contains the usual public offices. The District jail has accommodation for 216 prisoners, the manufactures being mustard oil, mats, and *surki* or brick-dust. A Government college affiliated to the Calcutta University was attended by a daily average of 66 pupils in 1900–1; the total expenditure was Rs. 28,000. A collegiate school is

attached to the college. Since 1881 the attendance at both institutions has shown a steady increase. Krishnagar is a station of the Church Missionary Society and the head-quarters of the Roman Catholic diocese of Central Bengal, each body having its own church and schools. The Church of England Zanāna Mission maintains two dispensaries, a hospital, and two schools.

Krishnagiri Tāluk.—*Tāluk* of Salem District, Madras, lying between 12° 14′ and 12° 43′ N. and 77° 58′ and 78° 30′ E., with an area of 659 square miles. It is situated in the borderland between the Mysore plateau and the great plains of the Carnatic, and is encircled by hills the summits of which are often crowned with ancient fortresses. It is traversed by numerous streams which take their rise in the surrounding hills and flow into the PONNAIYĀR river. In 1901 the population was 175,300, compared with 152,128 in 1891. There are 507 villages, and only one town, KRISHNAGIRI (population, 10,446), the head-quarters. The demand for land revenue and cesses in 1903–4 amounted to Rs. 2,25,000.

Krishnagiri Town.—Head-quarters of the *tāluk* of the same name in Salem District, Madras, situated in 12° 31′ N. and 78° 13′ E. Population (1901), 10,446. It is connected with Tiruppattūr on the Madras Railway by a road 24 miles long, and by a narrow-gauge (2 feet 6 inches) railway. The town consists of Krishnagiri proper, the old town, and a new suburb called Daulatābād, where the Government offices are situated. This last was built under the auspices of Munro and Graham, the first Assistant Collectors of the District; the present public bungalow was their residence. The town is commanded by a precipitous hill fort rising 800 feet above it. Such were its capabilities for defence that it was never carried by assault. In 1767, and again in 1791, British troops attempted it unsuccessfully; and on several occasions during the operations against Mysore it was necessary to blockade or mask it. In 1768 it surrendered to a blockading force, and was held by a British garrison for some years until restored by treaty. Grapes of an excellent quality are produced in the neighbourhood.

Krishnarājpet.—Northern *tāluk* of Mysore District, Mysore State, lying between 12° 25′ and 12° 52′ N. and 76° 20′ and 76° 40′ E., with an area of 425 square miles. The population in 1901 was 102,816, compared with 91,453 in 1891. The *tāluk* contains two towns, Krishnarājpet (population, 2,131), the head-quarters, and Kikkeri (1,490); and 373 villages. The land revenue demand in 1903–4 was Rs. 1,89,000. The Hemāvati runs through the west of the *tāluk* from north to south into the Cauvery, which forms the southern boundary. In the east are several rocky hills. Five channels are drawn from the Hemāvati, and many large tanks are used for irrigation. The soil is

red and fertile in the low grounds, but grey and sandy in the uplands, especially to the east. A coarse rice is grown in the east without irrigation. Coco-nut, betel-vine, and plantain gardens are productive. Much sugar-cane is grown. Silk cloths are made at Sindughatta.

Kūba.—Petty State in KĀTHIĀWĀR, Bombay.

Kuchāwan.—Head-quarters of a *jāgīr* estate of the same name in the Sāmbhar district of the State of Jodhpur, Rājputāna, situated in 27° 9′ N. and 74° 52′ E., about 8 miles north of Narānpura station on the Jodhpur-Bīkaner Railway. Population (1901), 10,749. The place is noted for the manufacture of guns, swords, &c., and possesses a strong and well-built fort containing several palatial buildings. To the south of the town are two saline depressions, miniatures of the Sāmbhar Lake in appearance and characteristics, but the small amount of salt which forms in them is so inferior as not to be worth collection. The estate consists of 14 villages, yielding a revenue of Rs. 54,000. The Thākurs of Kuchāwan belong to the Mertia sept of Rāthor Rājputs, and the present Thākur (Sher Singh) is a member of the State Council and a Rao Bahādur.

Kuch Bihār.—Native State in Bengal. *See* COOCH BEHĀR.

Kuda.—Village in the Māngaon *tāluka* of Kolāba District, Bombay, situated in 18° 17′ N. and 73° 6′ E., 13 miles north-west of Māngaon and 2 miles east of the north-east arm of the Rājpuri creek. Population (1901), 481. Kuda has a group of twenty-six Buddhist caves and eleven cisterns (100 B.C.—A.D. 500), commanding a beautiful view of the creek and the distant hills. Five of the caves are *chaityas* or shrines, and many of them contain inscriptions recording the names of the donors. The sixth cave alone contains sculptures, which consist of two elephants on either side of the front court, and figures of Buddha carved on the front of the cave, on the pillars of the veranda, and on the back wall. In the rear of the main hall is a parapet ornamented with animal figures, while male and female figures with a curious headdress are depicted on the back wall at the point where it meets the parapet. The inscriptions number altogether twenty-four, and are fully described, with other features of the caves, in the Thāna District Gazetteer.

Kūdali.—Sacred village in the Shimoga *tāluk* of Shimoga District, Mysore, situated in 14° 0′ N. and 75° 49′ E., at the confluence (*kūdal*) of the Tunga and Bhadra, where they unite to form the Tungabhadra, 9 miles north-east of Shimoga town. Population (1901), 1,043. There are *maths* belonging to the Smārtas and the Mādhvas, the former called the Sringeri, specially founded for Marāthās, who notwithstanding plundered and burnt the place under Parasurām Bhao in 1791. The temples are old, and are dedicated to Brahmesvara, Narasimha, and Rāmesvara.

Kudarimukh.—Peak on the frontier of Mysore and the South Kānara District of Madras. *See* KUDREMUKH.

Kudavāsal (*kudam*, 'pot,' and *vāsal*, 'entrance').—Town in the Nannilam *tāluk* of Tanjore District, Madras, situated in 10° 52′ N. and 79° 29′ E. Population (1901), 5,419. It is a deputy-*tahsīldār's* station. Silk cloths for women are woven here. Kudavāsal and Kumbakonam are supposed to have a legendary connexion, both names being said to be derived from the Tamil word for a pot. It is declared that the mouth of a pot of nectar carried by Garuda, the celestial kite who is the vehicle of the god Vishnu, fell at Kudavāsal and another portion at Kumbakonam.

Kudchi.—Village in the Athni *tāluka* of Belgaum District, Bombay, situated in 16° 38′ N. and 74° 52′ E., on the Southern Mahratta Railway. Population (1901), 5,879. There is a local manufacture of carpets. The village contains two boys' schools with 105 pupils and a girls' school with 26. On an island in the Kistna river, about a mile east of the village, in a *babūl* and tamarind grove, is a black stone tomb of Shaikh Muhammad Siraj-ud dīn Pīrdādi, a Musalmān saint and missionary. Among the numerous converts he made was a princess of Balkh named Masapli. She accompanied her preceptor to India and died here after a life of charity and benevolence. The saint died at Gulburga and was buried there, but in his honour a cenotaph was built near the tomb of the princess. Yearly fairs are held at the tomb. The *ināmdārs* claim to have been in possession of the village since the fourteenth century.

Kūdligi.—Western *tāluk* ot Bellary District, Madas, lying between 14° 33′ and 15° 4′ N. and 76° 9′ and 76° 45′ E., with an area of 863 square miles. The population in 1901 was 103,985, compared with 94,296 in 1891. It contains one town, KOTTŪRU (population, 6,996), and 116 villages. The head-quarters, from which it takes its name, is a mere village. The demand for land revenue and cesses in 1903–4 amounted to Rs. 1,48,000. This *tāluk* is perhaps the most picturesque portion of the District. Extensive date-palm groves fringe the streams, it is famous for tamarinds, and the hilly country in the north is the wildest and most rugged in Bellary. Round Kottūrū there is a little black cotton soil; but two-thirds of the *tāluk* consists of very poor red land, and a fifth is covered with mixed soils. Several places have a bad name for malaria, and it is more sparsely peopled than any other *tāluk* in the District. It supplies Bellary, Sandūr State, and even parts of Alūr, with toddy from date-palms, and exports considerable quantities of tamarinds. Kūdligi is the poorest *tāluk* in the District. Its soil is the worst in quality, the 'dry' land paying an average assessment of only 5 annas per acre and much being rated at as little as 2 annas; the land revenue derived, and the incidence

per head of the population, are less than anywhere else; the percentage of the holdings which pay less than Rs. 10 is higher than in any other *tāluk*; and nearly 10 per cent. of them pay one rupee or less. Only three-fifths of the *tāluk* is arable, the forest area being larger than in any other; and of the arable area one-third is waste. One reason for this large proportion is that much of the waste land is thickly covered with trees, and the ryots hesitate to pay the considerable sums which under the ordinary rules would be due for the value of this growth. Recently, therefore, a system has been sanctioned under which the ryot may pay the usual tree-tax until the total value of the trees has been discharged, instead of the whole value at once in one sum. So far the system has been a success. The forest area in the *tāluk* has also been added to recently, which will again reduce the proportion of waste. Even the land that is cultivable is often too poor to stand continuous cropping; and the area under cultivation consequently fluctuates considerably, while a large proportion produces only horse-gram, a crop that will flourish with little rain on almost any soil. Kūdligi has, however, a larger area served by tanks and wells than any other *tāluk*. Thus, although it possesses no channels, about 4 per cent., quite a high figure for a Bellary *tāluk*, is protected in all seasons. Moreover, the cattle have ample grazing ground in the numerous forests. *Cholam* and *korra* are, as usual, the staple food-grains, and a larger area is sown with castor than in any other *tāluk*.

Kudremukh ('Horse-face').—Conspicuous peak in the Western Ghāts, situated in 13° 8′ N. and 75° 16′ E., on the borders of the Kadūr District of Mysore and the South Kanara District of Madras; 6,215 feet high. Its name is descriptive of its appearance seawards, where it is a well-known mark for navigators. The approach from the Mysore side is by way of Samse, and the hill is sometimes called the Samse-parvat. The officials of South Kanara have a bungalow at the top as a hot-season retreat, and the bridle-path from that side is the easiest means of ascending the mountain.

Kukshī.—Head-quarters of the *pargana* of the same name in the Dhār State, Central India, situated in 22° 13′ N. and 74° 48′ E., distant by road 93 miles from Mhow on the Rājputāna-Mālwā Railway. Population (1901), 5,402. The town lies at the foot of the Vindhyan range, 1,746 feet above sea-level. It stands on the old trade route between Gujarāt and Mālwā, and was in consequence an important place until the opening of railways and new roads led traffic into other channels. Kukshī fell to the chiefs of Dhār in 1748, but must have been a place of importance long before this, although it is not mentioned in the *Ain-i-Akbarī*. A new metalled road leading from Barwānī to Bāgh and Amjhera passes through the town. Many of the houses are large and commodious, but a severe fire by which the town was ravaged

in 1894 seriously affected its appearance. Kukshī contains a hospital, a school, combined post and telegraph offices, a cotton-press, and a resthouse.

Kulāchi Tahsīl.—Western *tahsīl* of Dera Ismail Khān District, North-West Frontier Province, consisting of the country immediately below the Sulaimān mountains, between 31° 15′ and 32° 17′ N. and 70° 11′ and 70° 42′ E., with an area of 1,509 square miles. In appearance the tract bears a generic resemblance to the Dera Ismail Khān *tahsīl*, except for the stony plain and the line of barren and unsightly hills which form its western border. The plain is much cleft by deep channels which carry off the rain-water from the hills, and these are utilized for irrigation with great skill. The population in 1901 was 55,053, compared with 52,270 in 1891. The head-quarters are at KULĀCHI (population, 9,125), and the *tahsīl* also contains 81 villages. The land revenue and cesses in 1903–4 amounted to Rs. 96,000.

Kulāchi Town.—Head-quarters of the *tahsīl* of the same name in Dera Ismail Khān District, North-West Frontier Province, situated in 31° 56′ N. and 70° 28′ E., on the north bank of the Luni torrent, 27 miles west of Dera Ismail Khān town. Population (1901), 9,125. It is rather an aggregation of sixteen separate hamlets, standing near the union of their lands, than a regular town. A municipality was created in 1867, and its income and expenditure during the ten years ending 1902–3 averaged Rs. 6,900. In 1903–4 the income was Rs. 7,200, chiefly derived from octroi; and the expenditure was Rs. 7,100. The place formerly carried on a brisk trade with the Wazīrs of the hills, which declined before annexation, but has since somewhat revived. Kulāchi contains a Government dispensary, and its principal educational institution is an Anglo-vernacular middle school maintained by the District board.

Kuladan.—River in Arakan Division, Lower Burma. *See* KALADAN.

Kulang and **Alang.**—Two blocks of precipitous flat-topped rocks, crowned by forts, on the Ahmadnagar frontier of the Igatpuri *tāluka*, Nāsik District, Bombay, about 10 miles south-east of Igatpuri station. Kulang is situated in 19° 35′ N. and 73° 38′ E., and Alang in 19° 35′ N. and 73° 40′ E. Kulang and Alang are about 2 miles distant from each other, Alang lying almost entirely in Ahmadnagar District. Their tops are inaccessible, the old way of approach having been destroyed. The two blocks are separated by the smaller mass of Mandangarh, which, like its neighbours, was rendered inaccessible by the destruction, probably in 1818, of the rough staircase leading to it through a cleft in the almost perpendicular rock. Alang can be climbed from Kulangvādi village in Nāsik, about 2 miles to the north, but with great difficulty and some danger. To the east of Alang is the steep pass known as

Navrā-navri ('the Husband and Wife'), from two curious pillars of rock that jut up from the ridge dividing Nāsik and Ahmadnagar Districts. The pass is practicable for pedestrians, though difficult. No record of the builders of these forts has been traced. They were probably ceded to the Peshwā by the Mughals in 1760, along with Kavnai and other Nāsik forts. From the Peshwā they passed to the British in 1818.

Kulasekarapatnam.—Town and seaport in the Srīvaikuntam *tāluk* of Tinnevelly District, Madras, situated in 8° 25′ N. and 78° 3′ E. It is a Union, with a population (1901) of 19,898. A small quantity of salt, of unusually excellent quality, is produced here. The principal exports are fibre, oils and oil-cake, jaggery (coarse sugar), and tobacco. The total value of the exports in 1903–4 was 3·8 lakhs, and of the imports 4·3 lakhs.

Kulittalai.—*Tāluk* in Trichinopoly District, Madras, lying between 10° 16′ and 10° 59′ N. and 78° 8′ and 78° 43′ E., with an area of 901 square miles. The population rose from 243,700 in 1891 to 263,331 in 1901. The *tāluk* contains 229 villages. The demand for land revenue and cesses in 1903–4 amounted to Rs. 3,73,000. The head-quarters are at Kulittalai village. The Amarāvati river irrigates a few villages in the north-west corner, and the Cauvery, which forms the northern boundary, waters a narrow strip of land along that side. This tract is very fertile, but the soil in the remainder of the *tāluk* is generally poor. There are low hills covered with scrub jungle in the south and south-west. Two of the many large bosses of gneiss with which the District is studded are in this *tāluk*; one of these, called Ratnagiri, is about 5 miles to the south-south-west of Kulittalai village. The southern portion of the *tāluk*, consisting of the Marungāpuri and Kadavūr *zamīndāris* and 32 Government villages, comprised the old Manappārai *tāluk*, which was transferred from Madura District in 1856.

Kulpahār Tahsīl.—South-western *tahsīl* of Hamīrpur District, United Provinces, conterminous with the *pargana* of Panwārī-Jaitpur, lying between 25° 5′ and 25° 31′ N. and 79° 17′ and 79° 49′ E., with an area of 558 square miles. Population fell from 127,567 in 1891 to 111,926 in 1901. There are 231 villages and two towns: KULPAHĀR (population, 5,128), the *tahsīl* head-quarters, and Jaitpur (4,817). The demand for land revenue in 1904–5 was Rs. 1,71,000, and for cesses Rs. 34,000. The density of population, 201 persons per square mile, is almost exactly the District average. The *tahsīl* contains numerous hills and large areas of jungle. In the north black soil is found; but in the south the soil is poor and scanty, rock being near the surface. In 1903–4 the area under cultivation was 257 square miles, of which only 17 were irrigated. Wells serve most of the irrigated area, but

a small supply is obtained from tanks through canals managed by the Irrigation department.

Kulpahār Town.—Head-quarters of the *tahsīl* of the same name in Hamīrpur District, United Provinces, situated in 25° 19′ N. and 79° 39′ E., near the Great Indian Peninsula Railway. Population (1901), 5,128. The town was founded by Jagat Rāj, Rājā of Jaitpur, son of the great Bundelā leader, Chhatarsāl. Each of his four sons built for himself a mansion in the town, the ruins of which still exist. The fort was taken by Alī Bahādur of Bāndā in 1790, and was dismantled by the British in 1805. Kulpahār contains a *tahsīli*, and a school with 120 pupils. It is administered under Act XX of 1856, with an income of about Rs. 1,100. There is a considerable trade in grain and cotton, and a small cotton-press and hay-baling factory are worked.

Kulsi.—River of Assam, which rises in the Khāsi Hills a little to the west of Shillong, and flows north and west for 120 miles to the Brahmaputra, which it joins near the western boundary of Kāmrūp District. The most important places on its banks are the Kulsi plantation and Chaygaon, a market in Kāmrūp. The upper part of its course lies in jungle, but in the central portion of Kāmrūp it passes numerous villages. It affords an outlet for the timber of the Kulsi plantation, and a certain amount of lac and cotton is brought down it from the hills. The trunk road crosses the Kulsi on two iron bridges at Kukurmārā and Chaygaon.

Kulū Subdivision.—Subdivision of Kāngra District, Punjab, lying between 31° 21′ and 32° 59′ N. and 76° 49′ and 78° 42′ E. It consists of the KULŪ and SARĀJ *tahsīls* and the *wazīris* of LĀHUL and SPITI. The head-quarters are at NAGAR, a residence of the old Rājās.

Kulū Tahsīl.—*Tahsīl* in the Kulū subdivision of Kāngra District, Punjab, lying between 31° 50′ and 32° 26′ N. and 76° 56′ and 77° 33′ E., with an area of 1,054 square miles. The population in 1901 was 68,954, compared with 64,630 in 1891. It contains 42 villages, including NAGAR, the head-quarters of the subdivision, and SULTĀNPUR, the *tahsīl* head-quarters. The land revenue and cesses in 1903-4 amounted to Rs. 82,000.

The *tahsīl* nominally includes the *wazīris* of LĀHUL and SPITI. Kulū proper is divided into four *wazīris*—Parol, Lag Sari, Lag Mahārājā, and Rūpi—all lying in the upper basin of the Beās. The Beās basin is enclosed by very high mountain ranges, those which separate it from the Spiti, Chenāb, and Rāvi valleys having a mean elevation of 18,000 feet. The lower range, which separates it from the Sutlej valley, lies in the Sarāj *tahsīl*. The Beās rises in the north of Kulū proper at the crest of the Rohtang pass, 13,326 feet above the sea, and after a course of 60 miles enters Mandī State at an elevation

of 3,000 feet; its chief tributaries are the Pārbati, Sainj, and Tīrthan, whose valleys comprise the greater part of the eastern half of the tract. The Beās is bridged by the Duff Dunbar steel-rope suspension bridge at Shamsi, by another suspension bridge between Larji and Bujaura, and by wooden cantilever bridges (*sānghas*) at five other places. Its course presents a succession of magnificent scenery, including cataracts, gorges, precipitous cliffs, and mountains clad with forests of pine, towering above the tiers of *deodār* on the lower rocky ledges. Of the total area of Kulū proper, the cultivated portion amounts to only 60 square miles, and the rest is forest and desolate mountain waste above the limit of tree growth. The highest villages are not more than 9,000 feet above the sea, and the average elevation of the cultivated and inhabited parts is about 5,000 feet. The annual rainfall varies from 31 to 42 inches; in winter the ground is covered with snow for days or months together according to its situation, though snow does not usually lie long at heights of less than 6,000 feet; 55 feet of snow have been measured on the Sirīkand pass (15,000 feet), but the Dulchi pass, over which lies the main road to Kāngra, is generally open all the year round.

The little principality of Kulū formed one of the eleven original Rājput States between the Rāvi and the Sutlej, and probably belonged to some of the minor Katoch dynasties, offshoots from the great kingdom of JULLUNDUR. Hiuen Tsiang, the Chinese Buddhist pilgrim, visited it in the seventh century; and local legends preserve the names of eighty-seven princes who ruled successively in this remote mountain valley. Authentic history, however, first recognizes Kulū in the fifteenth century, when Rājā Sudh Singh, whom tradition places seventy-fourth in descent from the original founder of the dynasty, ascended the throne. His descendants ruled the valley till the beginning of the nineteenth century, their annals being wholly confined to the usual Indian record of court intrigues, assassinations, and dynastic quarrels. When the Gurkhas broke out from their home in Nepāl, and conquered all the country up to the banks of the Sutlej, they found Bikramā Singh upon the throne of Kulū. Like the other neighbouring chieftains, Bikramā Singh paid tribute to the invaders for his cis-Sutlej territory, as well as to Sansār Chand, the Katoch prince of KĀNGRA, for Kulū itself. In 1809, however, Ranjīt Singh, called in by Sansār Chand, made himself master of the hills, and levied tribute from the young Rājā of Kulū, Ajīt Singh, an illegitimate son of Bikramā Singh. Three years later, the Sikhs demanded an annual payment of Rs. 50,000, and, on the Rājā's refusal, marched upon his capital of Sultānpur and sacked his palace. Ajīt Singh at length bribed the Sikhs to withdraw, by paying them all the money he could collect. After the expulsion of the Gurkhas, the Rājā became a feudatory of

the British for the cis-Sutlej tract. In 1840 General Ventura led a Sikh force against the neighbouring State of Mandī, after conquering which, one of his lieutenants attacked Kulū, on the pretext of hostile dispositions. The Rājā made no resistance, and allowed himself to be taken prisoner; but the brutal discourtesy shown him by his captors roused the hereditary loyalty of the hillmen. A secret muster took place; and as the invaders marched out of Sarāj by the Basleo pass, the hillmen fell upon them in a narrow ravine, rescued their prince, and massacred the Sikhs almost to a man. Ajīt Singh retired across the Sutlej to his fief of Shāngri, which he had held from the British Government since the expulsion of the Gurkhas, and so placed himself beyond reach of vengeance from Lahore. A Sikh army soon after marched into Sarāj, but found it completely deserted, the inhabitants having fled into the inaccessible forests on the mountain-sides. Accordingly the Sikhs handed over the country in farm to the Rājā of Mandī, leaving a garrison in Kulū to enforce their supremacy. Ajīt Singh died at Shāngri in 1841; and the Sikhs made over *wazīri* Rūpi to his first cousin, Thākur Singh, while Shāngri remained in the hands of another relative. In 1846, at the close of the first Sikh War, the Jullundur Doāb, with the adjoining Hill States, passed into the power of the British; and Kulū, with Lāhul and Spiti, became a *tahsīl* of the new Kāngra District. Government confirmed Thākur Singh in his title of Rājā, and gave him sovereign powers within *wazīri* Rūpi. On his death in 1852, his son, Gyān Singh, of doubtful legitimacy, obtained the inferior title of Rai, with half the land and no political powers. The resumed half has since been restored, with certain reservations in favour of Government. In 1892 the present Rai, Megh Singh, succeeded to the *jāgīr* of Rūpi, with some modifications. The Rai is an honorary magistrate and Munsif in his *jāgīr*.

Kuluhā.—Hill in the head-quarters subdivision of Hazāribāgh District, Bengal, lying between 24° 16′ and 24° 27′ N. and 84° 48′ and 85° 6′ E. It abounds with Buddhist relics, and has a temple dedicated to Buddha and impressions said to have been made by Buddha's feet. The inscriptions, which date between the eighth and twelfth centuries, appear to be almost exclusively Buddhist, but are in very bad order. The Brāhmans have appropriated the sacred place of the Buddhists, and on the top of the hill is a temple of Durgā called Kuleswarī. Two fairs are held annually on the hill in the months of Chait and Aswin.

Kūmalgarh.—Fort in Udaipur State, Rājputāna. *See* KŪMBHALGARH.

Kumār.—River of Bengal, locally known as the Pāngāsi. An offshoot of the Mātābhānga, which leaves the main stream near Alamdānga, it flows in a tortuous easterly and south-easterly course first for a few miles through Nadiā District and afterwards through

Jessore. The head of the river is closed during the summer by a bar of sand, and the channel has silted up throughout, large boats being able to use it only during the rains. The Kumār is connected by a cross stream with the GARAI, but its main stream is carried away by the Nabagangā, into which it discharges at Māgura.

Kumāradhāri.—River in the north-west of Coorg, Southern India. It rises near the Subrahmanya hill, and, after running west along the boundary at the Bisale pass, unites with the Netrāvati in South Kanara, and under that name continues to the sea at Mangalore. Garnets are found in it near Subrahmanya village.

Kumāri.—Cape and village in Travancore State, Madras. *See* COMORIN.

Kumārkhāli.—Town in the Kushtia subdivision of Nadiā District, Bengal, situated in 23° 52′ N. and 89° 15′ E., on the left bank of the Garai river. Population (1901), 4,584. It is a station on the Eastern Bengal State Railway, and a considerable trading centre. During the mercantile days of the East India Company, a Commercial Resident was stationed at Kumārkhāli, and a large business in silk was carried on. The only relic of that time is a cemetery, with a few old tombs, the earliest dating from 1790. Kumārkhāli was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 6,000. In 1903–4 the income was Rs. 5,500, half of which was obtained from a tax on persons; and the expenditure was Rs. 5,300.

Kumaun.—The most northern Division of the United Provinces, situated almost entirely in the Himālayas, and extending from the borders of Tibet to the damp submontane tract known as the Tarai. The Division is bounded on the north by Tibet; on the east by Nepāl; on the south by the Bareilly Division and the State of Rāmpur; and on the west by the State of Tehrī and Dehra Dūn District. It lies between 28° 51′ and 31° 5′ N. and 78° 12′ and 81° 3′ E., with a total area of 13,725 miles. Although it is thus the second Division in size in the United Provinces, it is sparsely inhabited, and the density of population, 88 persons per square mile, is but one-fifth of the average. Population is rising steadily. The numbers at the four enumerations were as follows: (1872) 928,823, (1881) 1,046,263, (1891) 1,181,567, and (1901) 1,207,030. In 1901 Hindus formed more than 92 per cent. of the total, and Muhammadans only 7 per cent. Half of the latter are to be found in the TARAI portion of Nainī Tāl District. Christians numbered 3,509, of whom 2,276 were natives, and no other religion was represented by more than a few hundred followers. The head-quarters of the Commissioner are at NAINĪ TĀL, which is also the summer capital of the United Provinces. Kumaun contains three Districts, as shown below:—

District.	Area in square miles.	Population, 1901.	Land revenue and cesses, 1903-4, in thousands of rupees.
Nainī Tāl . .	2,677	311,237	2,23
Almorā . .	5,419	465,893	2,59
Garhwāl . .	5,629	429,900	1,68
Total	13,725	1,207,030	6,50

Nainī Tāl lies on the outer ranges of the Himālayas; but most of it is included in the waterless tract at their feet known as the Bhābar, and the moist country below called the Tarai. The other two Districts are situated mainly in the Himālayas, and include the highest peaks within the Indian Empire. The Division contains 10,041 villages and 12 towns, all of which are small. The largest are NAINĪ TĀL (population, 15,164 in summer, and 7,609 in winter, with cantonment), KĀSHĪPUR (12,023), and ALMORĀ (8,596). Kāshīpur, HALDWĀNĪ, TANAKPUR, SRĪNAGAR, KOTDWĀRA, and DWĀRĀHĀT are the principal places of commercial importance. Among many famous Hindu temples and places of pilgrimage, the chief are the shrines of BADRĪNĀTH and KEDĀRNĀTH. The tenures in the hill tracts differ considerably from those in the rest of the Provinces. Before British rule the normal system had been a kind of *ryotwāri*. Each village contained a number of cultivators called *khaikar*, who held hereditary, but not transferable, rights. During the Gurkha supremacy grants of cultivated land were often made to persons who were known as *thātwān*, the word *thāt* meaning 'village' or 'property in a village.' Such grants could be abrogated at will by the governing power. The *khaikars* paid to the *thātwān* the revenue assessed on the village and, in addition, certain dues and small cash rents. On the conquest by the British the *thātwān* or, if there was none, the *khaikars* received proprietary rights. All landholders are now called *hissadārs*, whatever their origin; but the name *khaikar* is used to describe the actual occupants of villages which were originally granted to a *thātwān*. The *khaikars* have heritable, but not saleable, rights, though subletting and even mortgage are allowed. They do not pay rent, but pay the Government revenue plus a *mālikāna*, which is generally 20 per cent. in Garhwāl and 25 per cent. in Almorā. There are few tenants-at-will, and *khaikari* rights are not acquired by prescription, though they are sometimes conferred at settlement. The Tarai is administered as a Government estate, while in the Bhābar the tenures are partly those of the hills and partly those of the Tarai and the plains. The gross revenue from all sources raised in the Division has been, in thousands of rupees: (1880-1) 11,25; (1890-1) 12,93; (1900-1) 15,98; and (1903-4) 16,37. Details by Districts are not tabulated separately.

Kumbakonam Tāluk.—Inland *tāluk* and subdivision of Tanjore District, Madras, lying on its northern border, between 10° 47′ and 11° 11′ N. and 79° 7′ and 79° 34′ E., with an area of 342 square miles. The population fell from 377,523 in 1891 to 375,031 in 1901; but it is still the most densely peopled *tāluk* in the District or (with three exceptions) in the Presidency, supporting 1,097 persons per square mile. The most important town is KUMBAKONAM CITY (population, 59,673), the head-quarters; and 6 miles east is TIRUVADAMARUDŪR (11,237), famous for its temple. The number of villages is 307. The demand for land revenue and cesses in 1903–4 amounted to Rs. 13,17,000. Being situated in the most fertile part of the CAUVERY delta, the greater part of its soil is alluvial and the rest black soil, and it is an exceptionally rich area. It shares with Nannilam the characteristic of possessing far more large landholders than any of the other *tāluks* in Tanjore, and the rent of the average holding is unusually high. About 47 per cent. of the 'wet' fields are assessed at Rs. 9 or over per acre, and 96 per cent. of the 'dry' fields at Rs. 2 or more. The chief agricultural products are rice, plantains, and betel-leaf, which are all largely exported; and the chief industries are the brass and bell-metal work and the silk- and cotton-weaving of Kumbakonam town.

Kumbakonam City (Sanskrit, *kumbha*, 'water-pot,' and *ghona*, 'nose'; Old Tamil, *kudandai*).—Head-quarters of the *tāluk* of the same name in Tanjore District, Madras, situated in 10° 58′ N. and 79° 22′ E., on the banks of the Cauvery, with a station on the main line of the South Indian Railway, 194 miles from Madras. The population in 1871 was 44,444; in 1881, 50,098; in 1891, 54,307; and in 1901, 59,673. It has thus been steadily increasing in size, and is now the sixth largest city in the Presidency. The total in 1901 included 2,183 Musalmāns, 1,272 Christians, and 87 Jains, the remainder being Hindus.

Kumbakonam is one of the oldest places in Southern India. It has been identified with the Malaikūrram which became the capital of the CHOLA dynasty about the seventh century. It has always remained a stronghold of Brāhmanism and Brāhmanical culture. A *math* (religious house), founded by the great Sankarāchārya, contains a valuable library of Sanskrit manuscripts. Many of its shrines bear old inscriptions. The Nāgeswara temple is so constructed that on three days in the year the sun's rays penetrate through the openings in the *gopuram* (tower) and fall on the idol, which is interpreted as an act of worship by the sun. The Sārangapāni temple has a *gopuram* richly ornamented with figures, a well-painted ceiling, and two large and elaborate festival cars of carved wood. One of the shrines in the city is dedicated to Brahmā, a deity who has very few temples in his honour. The Mahāmagham festival once in twelve years attracts an immense

concourse of visitors from all parts of India. It is the popular belief that on this occasion the Mahāmagham tank receives a direct supply of water from the Ganges by underground ways. The last festival of this kind took place in 1897.

In 1854 a provincial English school was started in Kumbakonam by Government. It was made a second-grade college in 1864, advanced classes being added three years later, and it was affiliated to the Madras University in 1877, the high school classes being abolished in 1881. The college has long maintained a high reputation for efficiency, but there is a growing tendency on the part of students to prefer the colleges at Madras. The average attendance in 1904 was 175. There are two English high schools, a Sanskrit high school, and a Vedic school maintained by private agency, besides a technical institute.

The chief manufactures are brass, bronze, copper, and lead vessels, silk and cotton cloths, sugar, indigo, and pottery. The metal-work is the best known of these. The silk industry, though said to be declining, is still considerable, employing as many as 2,000 looms. Cotton-weaving has fallen into insignificance of late years. The productions of the city are exported to other Districts by rail, and the place is also a centre for the collection and export of the locally grown rice, ground-nuts, and oilseeds.

A District Court was held at Kumbakonam from 1806 to 1863, and a Sub-Judge and a divisional officer are now stationed there. It is also the head-quarters of a Roman Catholic bishop of the French Mission.

Kumbakonam was made a municipality in 1866. The receipts and expenditure during the ten years ending 1902–3 averaged Rs. 85,000 and Rs. 92,000 respectively. The expenditure includes part of a loan and grant from Government, amounting to about a lakh, which was utilized in constructing drains in some of the streets. A further sum of Rs. 25,000 has recently been allotted for the same purpose. A scheme for supplying the city with water at an estimated cost of Rs. 4,05,000 has been approved by the Sanitary Board, but has been found to be beyond the resources of the municipality. In 1903–4 the income was Rs. 91,400, including house and land taxes (Rs. 36,000), tolls (Rs. 16,700), animal and vehicle tax (Rs. 7,800), and scavenging and other fees (Rs. 7,000); while the chief items of expenditure were conservancy (Rs. 28,000), hospitals and dispensaries (Rs. 8,000), roads and buildings (Rs. 15,000), and education (Rs. 8,000), out of a total of Rs. 81,500. The municipal hospital contains 72 beds.

Kūmbhalgarh.—Fortress on the western border of the State of Udaipur, Rājputāna, situated in 25° 9′ N. and 73° 35′ E., about 40 miles north of Udaipur city. It stands on a rocky hill 3,568 feet above sea-level, and commands a fine view of the wild and rugged

scenery of the Arāvallis and the sandy deserts of Mārwār. It is defended by a series of walls with battlements and bastions built on the slope of the hill, and contains a number of domed buildings which are reached through several gateways along a winding approach. The chief of these buildings is the Bādal Mahal, or 'cloud palace,' which, as its name implies, rises high above the rest. The fort is named after Rānā Kūmbha, who built it between 1443 and 1458 on the site of a still more ancient castle which tradition ascribes to Samprati, a Jain prince of the second century B.C. It is said to have been taken by Shāhbāz Khān, one of Akbar's generals, in 1576. During the Marāthā disturbances the armed band of Sanyāsis or ascetics, who formed the garrison, revolted; but in 1818 Captain Tod, then Political Agent, obtained possession of the place by arranging for the arrears of pay due to them, and the fort was restored to the Mahārānā. Kūmbhalgarh is also the name of one of the *parganas* or subdivisions of the Udaipur State, the head-quarters of which are at KELWĀRĀ.

Kūmbher.—*Tahsīl* and head-quarters thereof in Bharatpur State, Rājputāna. *See* KŪMHER.

Kumhārsain.—One of the Simla Hill States, Punjab, lying between 31° 6′ and 31° 20′ N. and 77° 22′ and 77° 35′ E., with an area of 90 square miles. Population (1901), 11,735. Kumhārsain village, the capital, lies 40 miles east of Simla on the Hindustān-Tibet road. Formerly a feudatory of Bashahr, the State was declared independent after the expulsion of the Gurkhas in 1815. On the other hand, it then lost its own tributary States, Bharauli and Madhān. The present chief, Rānā Hīra Singh, is of weak intellect, and the State was managed by a council for some years, but the results were unsatisfactory and a manager was appointed. In 1893 the land revenue was assessed at Rs. 16,500. The total revenue is Rs. 25,000, out of which Rs. 2,000 is paid as tribute. Nārkanda (Nāg Kanda), 9,016 feet above sea-level, a favourite resort for residents in Simla, lies in this State.

Kūmher.—Head-quarters of a *tahsīl* of the same name in the State of Bharatpur, Rājputāna, situated in 27° 19′ N. and 77° 23′ E., about 11 miles north-west of Bharatpur city. Population (1901), 6,240. The town is surrounded by a mud wall and ditch, and possesses a post and telegraph office, a vernacular school attended by about 130 boys, and a dispensary. The place is said to take its name from its founder, Kūmbha, a Jāt of the village of Sinsini, about 6 miles to the north-west. The palace and fort were built by Mahārājā Badan Singh about 1724, and thirty years later the place was unsuccessfully besieged by the Marāthās, when Khande Rao Holkar, the son of Malhār Rao, was killed. His cenotaph, erected by his widow, Ahalyā Bai, at the village of Gangarsoli, 3 miles to the north, is still maintained by the Indore State.

Kumillā.—Head-quarters subdivision and town in Tippera District, Eastern Bengal and Assam. *See* COMILLA.

Kumritār.—Peak in Bonai State, Bengal, situated in 21° 45′ N. and 85° 9′ E., 3,490 feet above sea-level.

Kumta Tāluka.—Coast *tāluka* of North Kanara District, Bombay, lying between 14° 21′ and 14° 37′ N. and 74° 20′ and 74° 44′ E., with an area of 224 square miles. There are two towns, KUMTA (population, 10,818), the head-quarters, and GOKARN (4,834); and 111 villages. The population in 1901 was 66,040, compared with 62,803 in 1891. The density, 295 persons per square mile, is higher than in any other *tāluka*. The demand for land revenue in 1903–4 was 1·17 lakhs, and for cesses Rs. 7,000. The coast-line, beginning south of the Gangāvali river, consists of long stretches of sand, fringed with coco-nut gardens and crossed by frequent rocky highlands and headlands, and by tidal creeks. Eight to twelve miles inland the hills are clothed with forest, which becomes denser as the Ghāts are approached. Near the coast is a belt of rice land; beyond is the central plain occupied by rice and sugar-cane; inland, rice gives place to *rāgi*. Water is plentiful. The soil is sandy or red loam. Kumta produces coco-nuts, rice, areca-nuts, pepper, sugar-cane, and pulses. The annual rainfall is heavy, averaging 133 inches.

Kumta Town.—Head-quarters of the *tāluka* of the same name in North Kanara District, Bombay, situated in 14° 26′ N. and 74° 25′ E., on the sea-coast on the north side of the Kumta creek, one mile east of the lighthouse, and about 113 miles north of Mangalore and 40 miles south of Kārwār. Population (1901), 10,818, including suburbs. The municipality, constituted in 1867, had an average income during the decade ending 1901 of Rs. 17,000. In 1903–4 the income was Rs. 17,500. Kumta, though an open roadstead, was formerly a place of large trade, owing to the roads which connect it with the cotton marts of Dhārwār; but this traffic has been much affected by the railway through Portuguese territory. The lighthouse, situated in 14° 25′ N. and 74° 23′ E., is 6 miles to the north of Fortified Island, and consists of an iron tubular mast 60 feet high, erected on a hill about half a mile to the east of the rocky cliffs of Kumta Point. It exhibits a fixed white light, at an elevation of 116 feet above sea-level, which is visible in clear weather at a distance of 12 miles from the deck of a ship. This light overlooks the mouth of the creek, which leads boats at high water up to the cotton warehouse on the south side of the town. The town contains a Subordinate Judge's court, a dispensary, a middle school, and nine other schools.

Kumta seems to have been formerly a place of some note. Its lanes are straight and fenced with stone walls, and it has many coco-nut gardens. Twice it had the misfortune of having Tipū's army encamped

in its vicinity, and on both occasions it was burned down by some of the irregulars. Its trade consists chiefly of cotton, spices, and grain, the first coming from Dhārwār District and the rest from the upland country of North Kanara. The only manufacture is the carving of a few articles of sandal-wood, which are exported to Bombay. Kumta port is one of the seven ports which make up the Honāvar Customs division. The trade is valued at 38 lakhs: namely, imports 12 lakhs, and exports 26 lakhs.

Kūnch Tahsīl.—Western *tahsīl* of Jālaun District, United Provinces, comprising the *pargana* of Kūnch and part of Mādhogarh, and lying along the Pahūj river, between 25° 51′ and 26° 15′ N. and 78° 56′ and 79° 18′ E., with an area of 338 square miles. Population increased from 102,815 in 1891 to 104,588 in 1901. There are 197 villages and one town, Kūnch (population, 15,888). The demand for land revenue in 1903–4 was Rs. 3,07,000, and for cesses Rs. 50,000. The density of population, 309 persons per square mile, is considerably above the District average. In the east is one of the richest areas of the black soil called *mār* to be found in Bundelkhand. It suffered from rust in 1894 and 1895, and subsequently from famine, but has not been overgrown by *kāns* (*Saccharum spontaneum*). West of the *mār* the soil becomes lighter as the ravines of the Pahūj are approached, and this tract is irrigated by the Kuthaund branch of the Betwā Canal. In 1900–1 the area under cultivation was 234 square miles, of which 11 were irrigated.

Kūnch Town (*Konch*).—Head-quarters of the *tahsīl* of the same name in Jālaun District, United Provinces, situated in 25° 59′ N. and 79° 10′ E., on a branch of the Great Indian Peninsula Railway. Population (1901), 15,888. Kūnch was the head-quarters of a *mahāl* or *pargana* under Akbar. In 1804 the commander of the British troops in Bundelkhand dispatched a force to reduce the fort of Amanta Malāya, five miles from Kūnch. Amīr Khān, the Pindāri, came to the rescue of the garrison, and the British had to retire to Kūnch after losing heavily. The Pindāris subsequently overpowered a small detachment of reinforcements at Kālpī, but their forces were entirely broken and dispersed by the British troops a month later. During the Mutiny Kūnch was several times occupied by the rebel troops. The town consists of a business quarter in the east, and a quiet, scattered country village to the west. The latter contains the high site of an old ruined mud fort, on which the *tahsīli* and police station now stand. The former is adorned by a large tank constructed in the eighteenth century, and has been much improved during the last thirty years. A new bazar has been built, and a large enclosure has been made, to which goods may be brought free of octroi. The chief public buildings are the dispensary and *tahsīli* school. Kūnch has been a municipality

since 1868. During the ten years ending 1901 the income and expenditure averaged Rs. 13,000. In 1903–4 the income was Rs. 22,000, chiefly from octroi (Rs. 13,000) and a tax on professions and trades (Rs. 2,000); and the expenditure was Rs. 22,000. The town is the largest trading centre in the District, and is increasing in importance. Grain and *ghī* are the chief exports, and a large cattle market is held. Sugar, tobacco, and rice are imported for distribution to the country around. The *tahsīlī* school has 66 pupils, four municipal schools 200, and a girls' school 22 pupils.

Kundā Tahsīl.—South-western *tahsīl* of Partābgarh District, United Provinces, comprising the *parganas* of Bihār, Dhingwas, Rāmpur, and Mānikpur, and lying between 25° 34′ and 26° 1′ N. and 81° 19′ and 81° 47′ E., with an area of 543 square miles. Population fell from 332,876 in 1891 to 323,508 in 1901, this being the only *tahsīl* in which a decrease occurred. There are 686 villages and only one town, Mānikpur (population, 3,673). The demand for land revenue in 1903–4 was Rs. 4,80,000, and for cesses Rs. 78,000. The density of population, 596 persons per square mile, is below the District average. The *tahsīl* lies north-east of the Ganges, which is bordered by a high tract of fertile loam. Farther inland the soil becomes clay, and many *jhīls* or swamps supply water for rice cultivation. In 1903–4 the area under cultivation was 289 square miles, of which 151 were irrigated. Wells and tanks or swamps supply irrigation in almost equal proportions.

Kunda Fort.—Ruined fort in the head-quarters subdivision of Hazāribāgh District, Bengal, situated in 24° 13′ N. and 84° 39′ E. It is in the form of a parallelogram, about 280 feet long by 170 feet broad, with a square central entrance tower on the west front, and four square corner towers connected by straight battlemented walls with an average height of 30 feet. It was admirably suited for defence, being situated on a tongue of land projecting into a basin surrounded by hills, except on the east side, where it commands a gorge.

Kundahs.—Range of hills in the Nīlgiri District, Madras, lying between 11° 12′ and 11° 23′ N. and 76° 26′ and 76° 43′ E., and forming the south-western wall of the Nīlgiri plateau, which rises abruptly from Malabar. The summit of the ridge is rocky and precipitous; and the sides, covered in places with grass and in the hollows clothed with thick forest, slope on the north down to the bed of the Kundah river, which separates this range from the rest of the table-land, and on the south drop suddenly for a great depth into the steep-sided valley of the Bhavāni. The three highest points in the range are Avalanche Peak (8,502 feet), Bear Hill (8,353 feet), and Makurti (8,403 feet). The best big-game shooting on the plateau is to be had here. Seen from Ootacamund the Kundahs are remarkably beautiful;

and the view from their tops across the Bhavāni and westwards to the heavy forest of the Attapādi valley is one of the finest in Southern India.

Kundāpur.—Subdivision, *tāluk*, and village in South Kānara District, Madras. *See* COONDAPOOR.

Kundgol.—Head-quarters of the *tāluka* of the same name in Jamkhandi State, Bombay, situated in 15° 15′ N. and 75° 18′ E. Population (1901), 2,286. It is administered as a municipality, with an income in 1903–4 of Rs. 3,000. The town contains a dispensary. The chief local trade is in cotton.

Kūndian.—Village in the Rāsmi *zila* of the State of Udaipur, Rājputāna, situated in 25° 2′ N. and 74° 19′ E., on the right bank of the Banās river, about 50 miles north-east of Udaipur city. Population (1901), 564. Here are many temples; and the pool called Mātri Kūndian is celebrated, as it is said that the sins of Parasu Rāma, the would-be matricide, were washed away on his bathing in its waters. A fair, lasting for three days, is held in May and is largely attended by pilgrims who bathe in the pool.

Kungyangon.—Southern township of Hanthawaddy District, Lower Burma, lying between 16° 19′ and 16° 40′ N. and 95° 50′ and 96° 20′ E., with an area of 453 square miles. The township is flat and fertile. It contains 263 villages. The population was 63,585 in 1891 and 71,017 in 1901. The head-quarters are at the village of Kungyangon (population, 2,789), on the Tawpalwe stream, 5 miles from its mouth. The area cultivated in 1903–4 was 267 square miles, paying Rs. 5,25,000 land revenue.

Kunigal.—South-eastern *tāluk* of Tumkūr District, Mysore, lying between 12° 45′ and 13° 8′ N. and 76° 50′ and 77° 10′ E., with an area of 382 square miles. The population in 1901 was 77,861, compared with 66,502 in 1891. The *tāluk* contains two towns, Kunigal (population, 1,802), the head-quarters, and Huliyūrdurga (1,746); and 315 villages. The land revenue demand in 1903–4 was Rs. 1,32,000. The Shimsha flows along the western and part of the southern border, receiving the Nāgani from the large tank at Kunigal. The south-east is occupied by the great hill range running north up to Maddagiri. Round Huliyūrdurga (3,086 feet), and from there to Hutridurga (3,713 feet) and Kunigal, the country is very hilly and jungly, with rocky and barren ground. In the north and west the soil is fertile and well cultivated. The old name, in the ninth century, under the Rāshtrakūtas, was Kuningil.

Kunihār.—One of the Simla Hill States, Punjab, lying between 31° 3′ and 31° 7′ N. and 76° 59′ and 77° 3′ E., about 15 miles west of Simla station, with an area of 80 square miles. Population (1901), 2,168. It was founded by a family of Raghubansi Rājputs from Aknūr

in Jammu. The present chief, Thākur Hardeo Singh, is a minor, and the administration is conducted by a council. The revenue is Rs. 4,000, out of which Rs. 180 is paid as tribute.

Kunjāh.—Town in the District and *tahsīl* of Gujrāt, Punjab, situated in 32° 32′ N. and 73° 59′ E., 7 miles west of Gujrāt town. Population (1901), 6,431. It was for some time the residence of Dīwān Kirpa Rām, governor of Kashmīr in the time of Ranjīt Singh. The municipality was created in 1874. The income during the ten years ending 1902-3 averaged Rs. 2,400, and the expenditure Rs. 2,300. In 1903-4 the income was Rs. 3,000, chiefly derived from octroi; and the expenditure was Rs. 2,500. The town has a vernacular middle school maintained by the District board, and a dispensary. It is of no commercial importance.

Kunjpura ('the heron's nest').—An estate in the District and *tahsīl* of Karnāl, Punjab, founded by Najābat Khān, a Ghorgasht Pathān and soldier of fortune under the Mughal emperors. Najābat Khān built a stronghold in the marshes of the Jumna early in the eighteenth century, and then revolted against the imperial government. Siding with Nādir Shāh in 1739, Najābat Khān was recognized by him as chief of Kunjpura and held it till he was killed in 1760, when the Marāthās razed his stronghold to the ground. His son, Diler Khān, received large grants of territory from the Durrānis, but he and his successor were driven out of their lands west of the Jumna by the Rājā of Jīnd and other Sikh chiefs. In 1787, however, Sindhia expelled the Jīnd Rājā from Karnāl, and ten years later General Perron recognized Gulsher Khān as Nawāb of Kunjpura. His son, Rahmat Khān, allied himself to Lord Lake in 1801, and in 1811 was recognized as a protected chief by the British Government. In 1846 the Nawāb of Kunjpura lost his sovereign powers, and the history of the family has since been one of incessant litigation. The present Nawāb succeeded in 1886. He holds a *jāgīr* of 38 villages with a revenue of Rs. 31,000, besides which his estate yields an income of nearly Rs. 32,000.

Kunnamkulam.—Town in the Talapilli *tāluk* of Cochin State, Madras, situated in 10° 39′ N. and 76° 4′ E. Population (1901), 7,194, of whom 63 per cent. are Christians, chiefly Jacobite Syrians. There are several Syrian churches in Kunnamkulam and its neighbourhood, and it is also one of the centres of the Church Missionary Society's work in Cochin. It contains a sub-magistrate's court, a lower secondary school, and a Jacobite Syrian high school, and has some trade in areca-nuts and other local produce.

Kurābar.—Chief town of an estate of the same name in the State of Udaipur, Rājputāna, situated in 24° 27′ N. and 73° 59′ E., on the left bank of a stream called the Godī, about 20 miles south-east of Udaipur city. Population (1901), 1,763. The estate, which consists

of 69 villages, is held by one of the first-class nobles of Mewār, who is termed Rāwat and belongs to the Chondāwat family of the Sesodia Rājputs, being an offshoot of the SALŪMBAR house. The total income of the estate is about Rs. 40,000, and no tribute is paid to the Darbār.

Kurai.—*Tahsīl* and town in Saugor District, Central Provinces. *See* KHURAI.

Kuram.—Political Agency and river in the North-West Frontier Province. *See* KURRAM.

Kurambranād.—*Tāluk* of Malabar District, Madras. *See* KURUMBRANĀD.

Kurandvād State.—State under the Political Agent for Kolhāpur and the Southern Marāthā Country, Bombay. At present it consists of two divisions, one belonging to the Senior ruler of Kurandvād, and the other to the Junior chiefs. The Senior division comprises one town, KURANDVĀD (population, 10,451), the head-quarters; and 37 villages. Of these, Tikota and Wategaon, the former in Bijāpur and the latter in Sātāra District, are quite isolated from the main *jāgīr*, of which 25 villages lie close to and south of the town of Belgaum, while the remaining 10 lie in the valley of the Kistna, intermixed with British territory and with the territory of the Sāngli, Kolhāpur, and Mirāj States. The Senior division, with its head-quarters also at Kurandvād, comprises two towns and 34 villages—17 in the neighbourhood of and mostly to the south of Belgaum, 15 on the borders of the Nizām's Dominions and to the east of Sholāpur District, and 2 within the limits of the Kolhāpur State.

The Kurandvād State was a grant made by the Peshwā to a member of the Patvardhan family on condition of military service. In 1811 the State was divided into two parts, one of which was called Kurandvād and the other Shedbāl. The latter share lapsed to the British Government in 1857, owing to failure of heirs. In 1855 a further division of Kurandvād into Senior and Junior was effected by the British Government between Raghunāth Rao and Ganpat Rao, Vināyak Rao, and Trimbak Rao. When Trimbak Rao died in 1869 without male issue, the whole of his share of the *jāgīr* was bestowed on Ganpat Rao and Vināyak Rao, with the exception of the share he possessed in the *inām* estate, which reverted to the Senior chief, Raghunāth Rao. The descendants of Harihar Rao and Vināyak Rao, brothers of Raghunāth Rao, now jointly form the Junior branch.

The Senior chief's estate contains an area of 185 square miles, and a population (1901) of 42,474. Hindus number 34,386, Muhammadans 4,452, and Jains 3,532. The staple crops are millet, rice, wheat, gram, and cotton. Coarse cotton cloth and articles of female apparel are the principal manufactures. The total tribute received

by the British Government from Kurandvād amounts to Rs. 9,619, which is paid by the Senior branch for the whole State. The Senior chief of Kurandvād ranks as a first-class Sardār in the Southern Marāthā Country, and has power to try his own subjects for capital offences. He enjoys an estimated revenue of nearly 2 lakhs. His family hold a *sanad* of adoption, and succession follows the rule of primogeniture. In 1903-4 there were 16 schools in the State with 497 pupils, and 2 dispensaries treating about 7,000 patients. About 800 persons are vaccinated annually.

The share of the Junior chiefs contains an area of 114 square miles and a population (1901) of 34,003. Hindus number 28,037, Muhammadans 3,413, and Jains 2,498. The family holds no *sanad* authorizing adoption, and succession does not usually follow the rule of primogeniture. The treaty of 1819 entered into by the Senior branch is considered as binding upon the Junior chiefs. The estimated revenue is about $1\frac{2}{3}$ lakhs of rupees. Two towns, Maindargi and Dudhani, are administered as municipalities, with an income in 1903-4 of Rs. 850. In 1903-4 there were 10 schools with 429 pupils, and one dispensary, which usually treated about 8,000 patients, but which was closed in that year. The police force numbers 67. In 1903-4, 850 persons were vaccinated.

Kurandvād Town.—Capital of the State of the same name in Bombay, situated in 16° 41′ N. and 74° 38′ E., on the right bank of the Pānchgangā river, close to its junction with the Kistna. Population (1901), 10,451. The town is the residence of the representatives of both branches of the ruling family, and was formerly well protected, but the defences are now mostly in ruins. It has no public buildings of any interest, save the palace of the chiefs, and a temple dedicated to Vishnu. Outside the town, at a distance of about a mile, is a fine masonry bathing *ghāt* on the Kistna. The water-supply is dependent on the Pānchgangā, from which a windmill pump raises water for the town. There is a charitable dispensary. The town is not a part of the *jāgīr*, having been given in *inām* to an ancestor of the chiefs by the Rājā of Kolhāpur. It is administered as a municipality, with an income in 1903-4 of Rs. 2,700.

Kurigrām Subdivision.—North-eastern subdivision of Rangpur District, Eastern Bengal and Assam, lying between 25° 23′ and 26° 14′ N. and 89° 20′ and 89° 53′ E., along the right bank of the Brahmaputra, with an area of 942 square miles. The population in 1901 was 514,392, compared with 507,711 in 1891, and the density was 546 persons per square mile. The subdivision, which is an alluvial tract, part of which is drained by the Dharlā, has lost area by diluvion, and cholera epidemics have been frequent, as the labour route to Assam formerly passed through it. There is only one town, KURIGRĀM

(population, 1,777), the head-quarters; and 1,518 villages. Chilmāri, on the Brahmaputra, is a place of pilgrimage, where an annual bathing festival takes place. Lālmanir Hāt is the junction of the Bengal-Duārs and the Eastern Bengal State Railways.

Kurigrām Town.—Head-quarters of the subdivision of the same name in Rangpur District, Eastern Bengal and Assam, situated in 25° 50′ N. and 89° 40′ E., on the right bank of the Dharlā river. Population (1901), 1,777. It is a station on the Kurigrām branch of the Eastern Bengal State Railway. The town contains the usual public offices; the sub-jail has accommodation for 17 prisoners.

Kurla.—Town in the Salsette *tāluka* of Thāna District, Bombay, situated in 19° 4′ N. and 72° 53′ E., on the eastern extremity of Salsette island, at the point where it is connected with the island of Bombay by the Sion causeway. It is also a station on the Great Indian Peninsula Railway. The town has two large cotton mills, of which the Swadeshi mill, owned by a Pārsī firm, is one of the largest in India. Population (1901), 14,831, compared with 9,715 in 1891. The large increase is partly due to the exodus of people from Bombay during the plague. Many have now made Kurla their permanent residence. The municipality was established in 1879. During the decade ending 1901 the income averaged Rs. 25,000. In 1903-4 the income was Rs. 35,000. The town contains 6 schools, attended by 339 pupils (including 56 girls), and a dispensary.

Kurnool District (vernacular *Kandenavolu*).—One of the four CEDED DISTRICTS in the Madras Presidency, lying between 14° 54′ and 16° 18′ N. and 77° 21′ and 79° 34′ E., with an area of 7,578 square miles. It is bounded on the north by the Tungabhadra and Kistna rivers (which separate it from the Nizām's Dominions); on the north-east by Guntūr District; on the east by Nellore; on the south by Cuddapah and Anantapur; and on the west by Bellary.

Physical aspects.

Two long ranges of hills, the NALLAMALAIS on the east and the Erramalas on the west, divide the District north and south into three well-defined sections: namely, the country east of the Nallamalais, that between this range and the Erramalas, and that west of the Erramalas. The easternmost of these sections, which includes the *tāluks* of Cumbum and Mārkāpur, is about 600 feet above sea-level and very hilly. Throughout the greater part of its length a range of hills known as the Velikondas (a part of the EASTERN GHĀTS) divides it from Nellore. Between this range and the Nallamalais to the west, several low parallel ridges cut up the country into valleys, and through these the hill streams draining the eastern slopes of the Nallamalais have forced their way. Some of the gorges thus hollowed out have been dammed, and tanks made in them for purposes of irrigation. The tank at

CUMBUM, formed by an embankment across the GUNDLAKAMMA river, is the most magnificent instance of this enterprise. Two passes, the Mantralamma, or Dornal, and the Nandikanama, lead across the Nallamalais into the central section of the District, and the Southern Mahratta Railway is carried through the latter. This central section, the Nandyāl valley, is for the most part a flat open valley, between 700 and 800 feet above sea-level and covered with black cotton soil. It is crossed from east to west by the great watershed between the Kistna and Penner river systems; and it is drained to the south by the Kunderu, a tributary of the latter river, and to the north by the Bavanāsi and other minor streams which fall into the former. From the east, the Nallamalais run down to meet it, while on the west the Erramalas rise up gradually into a series of flat-topped plateaux. In the dry season the valley presents a most arid appearance, but the Nallamalais on the east of it are always green. It includes the *tāluks* of Nandikotkūr, Nandyāl, Sirvel, and Koilkuntla, and the Native State of Banganapalle. The Kurnool-Cuddapah irrigation canal passes down the centre and commands a large area. Passing westwards over the Erramalas, which from the west present a clear and well-defined scarp gradually diminishing in height from south to north, the western section of the District, consisting of the two *tāluks* of Pattikonda and Rāmallakota, is reached. This section forms the north-eastern extremity of the Mysore plateau and is drained towards the north by the Hindri, a tributary of the Tungabhadra. The southern portion (except where it opens out into the Bellary black cotton soil plain) is much broken by rocky hills and long ridges of granitoid gneiss, and is covered with thin, poor, gravelly land. Northwards and westwards the country opens out, until near Kurnool it becomes an almost unbroken plain of black cotton soil.

The chief rivers of Kurnool are the Tungabhadra and Kistna already mentioned, while several smaller streams drain the three sections referred to above. The chief of those in the eastern section are the Gundlakamma and its tributaries, the Ralla Vāgu, Tīgaleru, Kandleru, and Duvvaleru, all rising in the Nallamalais. The Gundlakamma has its source near Gundlabrahmeswaram and enters the plains through the gorge of Cumbum, where it is held up by a dam 57 feet in height to form the Cumbum tank, about 15 square miles in extent. The river carries away the surplus escape of the tank, receives several tributaries, and runs in a north-easterly direction, forming the north-eastern boundary of the District. The Sagileru, also rising in the Nallamalais, flows south and drains the country towards the Penner in Cuddapah District. The chief rivers in the central section of the District are the Kunderu and Bavanāsi. The former rises in the Erramalas, and after receiving its most important tributary, the Galeru

or Kāli, which rises in the Nallamalais, flows southwards to join the Penner in Cuddapah District. The Bavanāsi, which rises in the Nallamalais, drains into the Kistna the country lying to the north of the watershed between that river and the Penner. The only river of importance in the western section is the Hindri, which rises in the Pattikonda *tāluk* and falls into the Tungabhadra at Kurnool town. Its chief tributaries are the Dhone Vāgu and Hukri. The portion of this western section which lies to the north of the railway line drains into the Hindri.

Geologically, Kurnool is situated in the centre of a basin occupied by the two great azoic formations known as the Cuddapah and Kurnool systems. The geological characteristics of each of the three natural divisions of the District are distinct. The eastern section belongs to the Cuddapah system, the prevailing rocks of which are slates over quartzites. The central portion belongs to the Kurnool system, the chief rocks of which are limestones and quartzites. The former make very good building material. The portion of the western section adjoining the Erramalas belongs to the Cuddapah system, while that part of it which lies in the extreme west of the District is occupied by crystalline or Archaean formations consisting of granitic rocks of no peculiar interest.

The Nallamalai forests, which are about 2,000 square miles in extent, are the finest in this part of the Presidency and contain a large variety of trees. The chief of these are referred to below under Forests. Elsewhere the flora of Kurnool is that of the drier zones of the Presidency. Fibre-producing plants and trees are common, among them being roselle, some of the *Bauhinias*, *Butea frondosa*, and *Calotropis gigantea*. In the villages, mangoes, tamarinds, and *iluppais* grow freely in plantations and groves, and date-palms (*Phoenix sylvestris*), which produce the alcoholic liquor of the District, flourish in the damper hollows. Coco-nut palms, however, are not grown extensively, the soil being unsuited to them, and palmyras are only to be seen in a few villages.

The hill country contains all the game usual to such localities. Tigers and bears are found on the Nallamalais, while wolves are met with all over the District, though not in large numbers. Crocodiles infest the Tungabhadra and Kistna, and in some places lie in pools near the bathing *ghāts* where human victims are easy to obtain. Mahseer of unusual size are occasionally taken in these rivers. The game-birds include sand-grouse and jungle-fowl.

The climate of Kurnool cannot be said to be healthy. The temperature in the shade goes up to 112° in the months of April and May and falls to 67° in November, the mean averaging about 82°. The period from February to May is hot, particularly so in April and

May. In June the south-west monsoon begins, and it lasts till September. The north-east monsoon brings some rain in October. Malarial fever is very prevalent almost everywhere, and especially so in the villages bordering on the Nallamalais. Guinea-worm and enlarged spleen, from which many of the inhabitants suffer, are due to the impurity of the water-supply.

The rainfall is light and irregular, and the whole of the District is included within the famine zone of the Presidency. The central or Nandyāl valley section has, as a whole, the least scanty fall in the District; but on the other hand parts of it, such as Owk, have the lightest. The average annual rainfall there is under 18 inches; for the whole District it is 26 inches. Except in the eastern section, where both the monsoons contribute equally, more than three-fourths of the annual supply is received during the south-west monsoon (June to September), which is consequently most important to the welfare of the country. This current, however, is exceedingly capricious and uncertain, and Kurnool is liable to frequent scarcity. Natural calamities other than famine have happily been rare. In 1851, however, unusually heavy floods in the Tungabhadra destroyed the crops in several villages, and washed away some buildings in the lower part of Kurnool town.

History.

Up to the conquest and occupation of the District by the Vijayanagar kings, nothing definite is known of its history; but it seems probable that it was successively in the hands of the Chālukyas, the Cholas, and the Ganpatis of Warangal. About the sixteenth century, Krishna Rāya, the greatest of the Vijayanagar dynasty, annexed the whole of it. On the break-up of his line after the disastrous defeat at Tālikotā in 1565 by the united Deccan Muhammadans, the District was overrun by one of the victors, the Kutb Shāhi Sultān of Golconda. It was also the scene of later Musalmān invasions. In 1687 Aurangzeb subdued the country south of the Kistna, and Ghiyās-ud-dīn, one of his generals, took Kurnool. Shortly afterwards the District was conferred as a *jāgīr* on Daud Khān, a Pathān general who had rendered important military service to the Mughals. Himāyat Khān succeeded in 1733. During his rule, in 1741, the Marāthās invaded the District, and their ravages are even now described in popular ballads. Himāyat Khān played an important part in the Carnatic Wars of the eighteenth century, proving treacherous alternately to the English and to the French. Kurnool was besieged and carried by assault in March, 1751, by Salābat Jang and the French general Bussy. In 1752 Munavvar Khān became Nawāb. In 1755 Haidar Alī, who subsequently usurped the Mysore throne, marched against Kurnool, and levied tribute. In the redistribution of territory that followed the final defeat and death of Tipū, Haidar's son and successor, in 1799, the District fell to the share of the Nizām. He

ceded it in 1800 to the British, in payment for a subsidiary force to be stationed in his territories; but the Nawāb of Kurnool was left in possession of his *jāgīr*, subject to a tribute of a lakh of rupees. The Pindāris plundered the country in 1816 during the time of Munavvar Khān. The latter was succeeded in 1823 by his brother Ghulām Rasūl Khān, the last of the Nawābs. In 1838 this man was found to be engaged in treasonable preparations on an extensive scale, and in the next year he was sent to Trichinopoly, where he was subsequently murdered by his own servant. His territories, with the minor *jāgīrs* enjoyed by his nobles and relatives, were annexed, and the members of his family were liberally pensioned. Since then the peace of the District has been but once disturbed, by a descendant of a dispossessed *poligār* in 1846. He was, however, captured and publicly hanged. From 1839 to 1858, the territory taken from the Nawāb (consisting of the four *tāluks* of Rāmallakota, Nandikotkūr, Nandyāl, and Sirvel) was administered by a British Commissioner and Agent. In 1858 three *tāluks* of Cuddapah (Koilkuntla, Cumbum, and Mārkāpur) and the Pattikonda *tāluk* of Bellary were added to Kurnool proper, and the whole was formed into the present Collectorate.

Kurnool possesses few remains of archaeological interest. The Srīsailam plateau on the Nallamalais contains the ruins of old forts, houses, and towns, showing that it was inhabited by prosperous communities in olden days. Almost every town in the District has a ruined fort and every village its own keep. Dolmens or cromlechs are found in some villages of Mārkāpur and Cumbum. The most important Hindu temples are those at Srīsailam and Ahobilam on the Nallamalais.

Population.

The number of towns and villages in the District is 3 and 751 respectively. It is divided into eight *tāluks*, of which statistics according to the Census of 1901 are given below:—

Tāluk.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Mārkāpur	1,140	...	76	94,293	83	− 5·7	3,342
Cumbum	1,061	1	101	115,881	109	− 1·5	5,353
Nandikotkūr	1,358	...	102	104,167	77	+ 17·6	4,398
Rāmallakota	846	1	106	142,855	169	+ 14·3	6,121
Pattikonda	1,134	...	104	143,033	126	+ 3·1	4,143
Nandyāl	854	1	91	110,292	129	+ 14·5	5,516
Sirvel	613	...	86	73,387	120	+ 12·6	3,234
Koilkuntla	572	...	85	88,147	154	+ 1·9	4,603
District total	7,578	3	751	872,055	115	+ 6·6	36,710

Except in the cases of Rāmallakota, Sirvel, and Cumbum (the head-quarters of which are respectively Kurnool, Allagadda, and Giddalūr), the head-quarters of the *tāluks* are at the places from which each is named. The density of the population in Mārkāpur and Nandikotkūr is less than 100 per square mile, and the District as a whole is more sparsely populated than any other in the Presidency. The population in 1871 was 914,432; in 1881, 678,551; in 1891, 817,811; and in 1901, 872,055. The great decline in 1881 was due to the famine of 1876–8, and the population has not even yet regained the numbers then lost. During the decade ending 1901, the District again suffered from adverse seasons, especially in the Cumbum and Mārkāpur *tāluks*, and the population of both these areas declined; but on the whole the advance was little below the normal. The three towns are the two municipalities of KURNOOL (population, 25,376), the head-quarters, and NANDYĀL (15,137), and the Union of CUMBUM (6,502). The total urban population is less than in any District except the Nīlgiris, and as many as 95 per cent. of the people live in villages. Classified according to religion, Hindus number 728,782; Muhammadans, 107,626, or 12 per cent. of the total, a higher proportion than in any other Madras District except Malabar; and Christians, 30,043, or 4 per cent. The last have nearly trebled during the past twenty years, and they increased by 50 per cent. in the decade ending 1901. About three-fourths of them are Baptists and another fifth Anglicans. The same unexplained deficiency of females occurs in Kurnool as in the other Deccan Districts.

The District contains a smaller proportion of Eurasians than any other, and a smaller percentage of Europeans than any other except Cuddapah. Apart from the wandering tribe of the Kuravans, the gipsy Lambādis, and 23,000 Kanarese-speaking Kurubas (shepherds), the Hindus are nearly all Telugus, the most numerous caste being the Kāpu cultivators, 121,000 strong. Next to them come the Boyas, numbering 86,000. They are the great *shikāri* caste of the Deccan, and are fine fearless fellows. Nowadays many of them have taken to agriculture; and two well-marked divisions, the Myāsa (forest) Boyas and the Uru (village) Boyas, have arisen, of whom the latter are the more advanced in their ideas. The caste is interesting as being one of the few in which survivals of totemism have been found. Perhaps, however, the most curious of the Kurnool castes are the forest people called the Chenchus, who mainly live on the Nallamalais in small clusters of little round huts. Of the Musalmāns, the majority, as usual, are Shaikhs, but Dūdekulas (a mixed race which follows many Hindu customs) and Saiyids are also numerous. The occupations of the people present no points of particular interest. As many as 74 per cent. subsist by callings connected with agriculture or pasture; and the only directions in which their means of livelihood show notable varia-

tions from the normal are in the considerable percentage of weavers, and the small proportion of those who live by the professions.

The American Baptist Mission has stations at Kurnool, Cumbum, and Mārkāpur. The London Mission, formerly at Nandyāl, has now resigned that field to the Society for the Propagation of the Gospel. The Roman Catholic missions are in a less flourishing condition than farther south. Their chief station is Polūr, near Nandyāl.

Agriculture.

The soils of the District are either red or black. In the eastern section the prevailing variety of land is red, of a poor, thin, gravelly description, though patches of black cotton soil and red clay are found here and there in the valleys of the Tīgaleru, Gundlakamma, and Sagileru. These red earths, being generally formed from disintegrated particles of the gneiss, mica, quartz, and altered sandstone of which the hills are composed, are generally speaking inferior, lying over rock which is only a few inches below the surface. The poverty of the soil is, however, in some degree compensated by the facilities which exist for the digging of wells on the river banks; almost all the well-irrigation in the District is confined to this section. The central or Nandyāl valley section consists almost entirely of black cotton soil. The southern part of the western section is covered with a thin, poor, gravelly earth, but northwards and westwards stiff black cotton soil replaces the gravels. Roughly speaking, a fourth of it consists of red earth and the remaining three-fourths of black cotton soil. The District is essentially one producing 'dry crops,' and the sowing season is spread over the period from July to November. The great part of the early sowings up to August takes place on the light soils, and those which follow, between September and November, are on the heavier land. By the middle of November sowing is practically over.

The District is almost entirely *ryotwāri*, there being no *zamīndāris* in it. The area of the 'whole *inām*' villages is 204 square miles. Statistics for 1903–4 of the area for which particulars are on record are given below, in square miles:—

Tāluk.	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.	Irrigated.
Mārkāpur	1,117	557	76	309	29
Cumbum	1,031	599	95	306	21
Nandikotkūr	1,335	709	75	472	42
Rāmallakota	849	65	77	576	9
Pattikonda	1,056	112	60	743	9
Nandyāl	862	351	3	382	20
Sirvel	686	202	26	332	19
Koilkuntla	568	54	9	364	8
Total	7,504	2,649	421	3,484	157

Forests occupy 34 per cent. of the total area, and the cultivable waste is only about 5 per cent. The staple food-grains are *cholam* (*Sorghum vulgare*) and *korra* (*Setaria italica*), the area under them being 884 and 598 square miles respectively, or 27 and 19 per cent. of the total area cropped in 1903–4. The former is the most important crop of the four central and two western *tāluks*, while *korra*, *rāgi* (*Eleusine coracana*), and *cambu* (*Pennisetum typhoideum*) are the chief staples of the two *tāluks* of the eastern section. Nearly 90 per cent. of the area under *rāgi* and 50 per cent. of that under *cambu* is in these two *tāluks*. Generally speaking, *korra* and *cambu* are raised on the poorer red soils, while *cholam* is the chief crop of the black cotton soils. Horse-gram is also extensively grown, especially in Pattikonda, Cumbum, and Mārkāpur. The area under rice is comparatively small, being only 128 square miles. Next to *cholam* and *korra*, cotton is the crop most extensively cultivated, covering 430 square miles. Almost the whole of it is raised in the five black-soil *tāluks* west of the Nallamalais. The area under oilseeds is also comparatively extensive, being 217 square miles; nearly two-thirds of this lie in the two *tāluks* of Rāmallakota and Pattikonda.

The extension of the area of holdings during the last thirty years has amounted to 7 per cent.; and considering the terrible mortality during the great famine of 1876–8 and the fact that the population is still 4 per cent. below what it was in 1871, this rate of increase may be regarded as fair. 'Wet' holdings, however, have remained almost stationary in area, notwithstanding the facilities afforded by the KURNOOL-CUDDAPAH CANAL. There are still large areas of arable land in all the *tāluks* except Nandyāl, Sirvel, and Koilkuntla. Very little improvement is perceptible in the quality of the crops grown, and the ryots cling to their primitive methods of cultivation. The Mauritius sugar-cane, which is said to have been introduced in 1843, has however ousted the indigenous variety, except in Cumbum. Unless during famine or scarcity, the Kurnool ryots have not been anxious to avail themselves of the benefits of the Loans Acts. The total amount advanced during the sixteen years ending 1904 was a little over 7 lakhs; but the greater part of this appears to have been spent on the improvement of land, such as the removal of deep-rooted grass, the building of stone boundary walls, &c., and very little in the digging of wells. Most of the few wells which have been made are in the Mārkāpur subdivision.

Kurnool cannot be said to be rich in horned cattle. Two-thirds of the animals used, especially those intended for the ploughing of the heavy black cotton soils, are imported from Nellore, Guntūr, and Kistna. The cattle bred in the District itself are smaller, but more hardy, than the coast bullocks. They are good trotters, but unfit for tilling heavy land. The eastern section of the District is comparatively

richer than the rest in cattle and sheep, on account of the never-failing pasture on the Nallamalais. In the central section considerable herds of breeding cattle are maintained in the villages bordering upon the Nallamalais and Erramalas, where there is abundant pasturage; but in the central part of the valley few animals are kept besides the plough bullocks, most of which are imported animals of the Nellore breed. In the western *tāluks* also the stock for the cotton-soil land is provided from Nellore. A considerable number of buffaloes are bred for export. There are three varieties of sheep—the black, the brown, and the white. The last variety is confined to Cumbum and Mārkāpur. The species in the western *tāluks* are black and brown. The black sheep yield a short wool, which is shorn twice a year and made into rough blankets. The brown sheep are covered with hair instead of wool and are valued only for their flesh. Goats are bred mainly for their manure. There is no local breed of ponies.

The District is essentially an unirrigated area. Of the total *ryotwāri* and *inām* area cultivated in 1903–4, only 157 square miles, or $4\frac{1}{2}$ per cent., were irrigated. Of this portion, 74 square miles were watered from tanks, 32 square miles from Government canals and channels, and 31 square miles from wells. More than one-third of the area supplied by tanks is in the two *tāluks* of Mārkāpur and Cumbum, where the country is best adapted for the formation of reservoirs. The biggest tanks in the District are those at Cumbum, irrigating 9,000 acres of first and second crop, at Nandyāl, and at Owk and Timmanāyanipet in the Koilkuntla *tāluk*. In former days ryots were encouraged to form tanks at their own cost, in return for the grant of lands free of rent or the assignment of a portion of the land revenue for their maintenance and repairs. These were called *dasabandam* sources. The greater part of the area irrigated by them (more than 85 per cent.) lies in the single *tāluk* of Mārkāpur. The Kurnool-Cuddapah Canal irrigates 25,000 acres in the five *tāluks* through which it passes, and more than a third of this area lies in Nandikotkūr. In some of the villages bordering upon the Nallamalais and Erramalas, the hot springs which lie at the foot of these ranges are the chief sources of irrigation. The most important of these, all of which are perennial, are at Mahānandi, Kālwa, Dhone, and Brahmagundam. Of the total area irrigated from wells, two-thirds is in the single *tāluk* of Mārkāpur. The number of these sources is 10,868. In the Pattikonda *tāluk* there are many *doravu* wells, or baling-places made on the banks of rivers and streams. The lands served by them were classed as 'wet' at the settlement. The numerous jungle streams in the District are not used directly for irrigation, except where the configuration of the country has facilitated the formation of tanks. There are, however, numerous *doravu* wells on their banks—especially along the Gondlakamma, Hindri, and

Bavanāsi. The lands supplied by those on the banks of the Gundlakamma are exempted from water rate on account of the high cost of constructing the wells, but those irrigated from the others are charged with an additional assessment, and valuable garden crops are raised. Leathern buckets drawn up with a rope and pulley by cattle working down an inclined plane are universally used for lifting the water.

Forests, &c.

From both their extent and nature, the forests of Kurnool are important. Their total area in 1903-4 was 2,649 square miles, the Nallamalais alone comprising one vast expanse of 2,000 square miles. Next in importance are the forests on the Erramalas, and last the Velikonda forests. On account of the extensive area to be managed, the District has recently been divided into the two forest charges of East and West Kurnool.

The greater part of the growth on the Nallamalais is still untouched. This area affords ample pasturage at all times of the year, and to it are driven the cattle of the Districts of Nellore and Guntūr during the summer. It is the chief source of the fuel supplied to the Southern Mahratta Railway. The more valuable timber trees are teak, redsanders, *nallamaddi* (*Terminalia tomentosa*), *egi* (*Pterocarpus Marsupium*), *jittegi* (black-wood), and *yepi* (*Hardwickia binata*). Sandal-wood is found near Srīsailam, but it is not as strongly scented as the wood of the Coimbatore and Mysore forests. Bamboos are also plentiful. The Velikonda forests contain the same species as the Nallamalais, but they do not grow to as great a size. The Erramala forests are of minor importance and contain no valuable timber. These hills are generally bare of growth on their flat tops; but the slopes are clothed with stunted trees and shrubs which, however, are only fit for firewood.

The minerals of the District are hardly worked at all, but some Madras firms have taken out prospecting licences. Iron ore is plentiful on both the Erramalas and Nallamalais. That found on the Gani hill is said to be the best. Iron was smelted in a hill called Inapartikonda near Veldurti (Rāmallakota *tāluk*) till a few years ago, but the industry has now been abandoned. The chief smelting centre at present is Rudravaram, a village at the foot of the Nallamalais in the Sirvel *tāluk*. The ore worked here is generally a massive, shaly, iron sandstone. The iron produced is largely used for ploughs and other agricultural implements. Copper mines were formerly worked in Gani. Lead is found near Gāzulapalle at the foot of the Nallamalais in the Nandyāl *tāluk*. Diamond mines were formerly worked on a large scale in Banganapalle, Munimadugu, and Rāmallakota.

The only important industries in the District are cotton-weaving and the manufacture of cotton carpets. The cotton-weaving is of the

ordinary kind, only coarse cloths being made. Cotton carpets of a superior description are made at Kurnool and Cumbum. The manufacture of lacquered wares and paintings on leather is carried on in Nandyāl and Nosam (Koilkuntla *tāluk*). Thick woollen blankets are woven in some villages of the Nandikotkūr *tāluk*. There are four cotton-presses, two at Nandyāl owned by Europeans, and two at Kurnool by natives. All four are worked by steam. They clean or press the local cotton for export to Bombay and Madras. In 1904 the two Nandyāl presses employed on an average 119 hands. The presses at Kurnool are smaller concerns, the average number of hands employed being less than 25. The growing of rubber-producing plants has recently been started in Kurnool under European supervision. A tannery has also been working there for the last four years.

Trade and communications.

Commercially, the District is of small importance. The chief exports are cotton, turmeric, tobacco, *ghī*, gum, honey, melons, oilseeds, onions, indigo, timber, woollen blankets, cotton cloths, and cotton carpets; while European piece-goods, salt, areca-nuts, coco-nuts, sugar, jaggery (coarse sugar), brass and copper utensils, cattle, and various condiments required for Indian households are the chief imports. There is usually no export of grain, but in 1900 a large quantity was sent to Bombay, where the distress was acute and prices correspondingly high. Trade is chiefly with the neighbouring Districts and Hyderābād. Salt, however, is imported from Bombay, and cotton is exported to that city and Madras. *Ghī*, melons, cotton carpets, and timber are sent to Hyderābād by the trunk road connecting the two places. Sugar and jaggery are obtained from North Arcot, and piece-goods and utensils from Bellary and Madras. Kurnool, Nandyāl, and Cumbum are the centres of trade for the western, central, and eastern divisions of the District respectively. Nandyāl is, however, outstripping Kurnool in commercial importance, as it is on the railway, while Kurnool is 33 miles from the nearest station. The Komatis are the chief merchants, but latterly many Musalmāns have taken to trade. Two large European firms have agencies at Kurnool and Nandyāl for their cotton business. Most of the internal trade is effected through the agency of weekly markets. Thirteen of these are under the management of the local boards, and the fees levied in them in 1903–4 yielded Rs. 1,850. The most important are at Nandyāl, Gūdūr, Pattikonda, and Koilkuntla.

The Southern Mahratta Railway (metre gauge) enters the District about 2 miles to the west of Maddikera in the Pattikonda *tāluk*, and runs across from west to east till it reaches Cumbum, where it turns northwards along the eastern border. It places all parts of the District within 30 miles of a railway, which taps at its eastern extremities the

rich grain-growing deltas of the Godāvari and the Kistna, and is thus a valuable defence in time of famine. The line was opened for traffic to Nandyāl in 1887, and thence to Cumbum and Tadepalle in 1889-90. The Madras Railway (broad gauge) also touches the District in a corner of the Pattikonda *tāluk*.

The total length of metalled roads is 547 miles, and of unmetalled roads 171 miles, all of which are maintained from Local funds. There are avenues of trees along 606 miles. The western section is fairly well provided with communications, trunk roads branching from Kurnool to Bellary, Gooty, Cuddapah, and Hyderābād. The Nandikotkūr and Nandyāl *tāluks* are also provided with good roads, the facilities thus afforded being supplemented by the irrigation canal which runs through the middle of them and is navigable throughout its course. The remaining four *tāluks* are deficient in communications. There are two *ghāt* roads over the Erramalas—the Tammarāzupalle pass and the Rāmpur pass. Neither of the roads across the Nallamalais—namely, the Mantralamma pass and the Nandikanama pass (the latter of which was formerly the highway between the coast and the interior)—is now much used, and they are becoming impassable.

Famine.

The whole District lies within the famine zone, and has suffered nine times from want of rain since the beginning of the last century: namely, in the years 1804, 1820, 1824, 1833, 1853-4, 1866, 1876-8, 1891-2, and 1896-7. In 1873-4, also, parts of it suffered, and in 1884 there was widespread distress. The season was again bad in 1900 in some portions. No statistics are available of the relief given previous to 1866. The average number of persons relieved in that year was 1,741, while the maximum number relieved in any one month was 2,727 in October. In 1876 both monsoons failed and prices rose enormously. The average number of persons relieved daily during the twenty-two months from December, 1876, to September, 1878, was 140,025, of whom 32,596 were relieved gratuitously and the remainder employed on works. The maximum number relieved in any one month was 299,804, or as much as 31 per cent. of the total population. The mortality caused by starvation and the diseases incidental thereto will never be known accurately, but the Census of 1881 showed that the population had decreased since 1871 by 26 per cent. No other District in the Presidency exhibited so terrible a decline. During the famine of 1891-2, in which the *tāluk* of Cumbum suffered worst, the average daily number of persons relieved was 14,107. The last serious famine was that of 1896-7. The average number relieved daily was 52,736, exclusive of 12,788 persons on gratuitous relief. The maximum number of persons on relief works in any one month was 170,289 in July, 1897. In this famine the expenditure in Kurnool District alone was 21 lakhs.

For administrative purposes Kurnool is divided into four subdivisions, one of which is in charge of a member of the Indian Civil Service, while the others are under Deputy-Collectors recruited in India. The subdivisions are Nandyāl (the Civilian's charge), comprising the *tāluks* of NANDYĀL, SIRVEL, and KOILKUNTLA; Mārkāpur, comprising the MĀRKĀPUR and CUMBUM *tāluks*; Kurnool, comprising RĀMALLAKOTA and PATTIKONDA; and the head-quarters subdivision, which consists of the single *tāluk* of NANDIKOTKŪR. A *tahsīldār* is stationed at the head-quarters of each *tāluk*, and a stationary sub-magistrate in three of them: namely, Nandyāl, Rāmallakota, and Pattikonda. In addition to the usual District staff there are two District Forest officers, and a special Deputy-Collector in charge of the irrigation from the Kurnool-Cuddapah Canal.

Administration.

There are three regular District Munsifs' courts—at Kurnool, Nandyāl, and Mārkāpur. Appeals from these, as well as from the District Munsif of Gooty in Anantapur, lie to the District Judge of Kurnool. The Court of Sessions tries the sessions cases which arise within the District and in the Gooty and Tādpatri *tāluks* outside it, and hears appeals from the convictions passed by the first-class magistrates. Dacoities, robberies, housebreakings, and thefts fluctuate in numbers, as elsewhere, with the state of the season, but proportionately to the population are more than usually common. The District has indeed the reputation of being one of the most criminal in the Presidency. Murders are especially frequent, being usually due to private personal motives or disputes about land. These land disputes often lead to serious riots, and the Koilkuntla *tāluk* is notorious for such disturbances. The Donga (thief) Oddes are the most criminal class. Their profession may be said to be thieving and robbing, and they are very brutal in their treatment of their victims.

As already stated, the District consists historically of two portions: namely, Kurnool proper, consisting of the Rāmallakota, Nandikotkūr, Nandyāl, and Sirvel *tāluks*; and the four transferred *tāluks* of Cumbum, Mārkāpur, Koilkuntla, and Pattikonda. The revenue history of these two tracts is distinct. The history of the transferred *tāluks* is identical with that of the Districts from which they were transferred. Little definite is known of the methods of assessment under pre-British rulers in them. The villages were rented out to *poligārs*, who paid a *peshkash*, or tribute, and sometimes rendered military service. This tract came into the possession of the British in 1800, when Major (afterwards Sir Thomas) Munro, the first administrator of the Ceded Districts, introduced a rough field survey and settled the lands on a quasi-*ryotwāri* system. But his rates were fixed with reference to the high assessment levied under the Musalmān governments, and were excessive. Sir Thomas eventually himself recommended a reduction

of 25 per cent. in the assessments on 'dry' and 'wet' lands and an additional 8 per cent. on garden lands, but his recommendations were not accepted. After his departure to England in 1807, the villages were rented out on a triennial lease, and again on a decennial lease from 1810. Many of the lessees fell heavily into arrears and the renting system was discontinued in 1821. Later, Munro, who had returned as Governor of Madras, was able to carry out his old recommendations. The *ryotwāri* system was reintroduced, with the reductions in the rates which he had proposed. Since then no sweeping changes have occurred, except the exemption from extra assessment of land irrigated from wells and tanks constructed at private expense, the assimilation of 'garden' rates to 'dry' rates, and the abolition of the tax on special products. After the formation of the District as it now stands in 1858, a survey and settlement on modern lines were made; and the new rates were introduced in Pattikonda in 1872, in Koilkuntla in 1874, and in Cumbum and Mārkāpur in 1877.

In the case of Kurnool proper, very little is known of the former revenue history. The *gudikattu*, the only old record of importance, contains in detail the boundaries of each village and the extent and descriptions of all the lands in it, but no figures of assessment. During the Hindu period, the village lease system appears to have been the ordinary mode of settlement, the headman distributing the land with reference to the means of the ryots, and the fields being roughly classed with reference to the nature of their soil. The same system was continued under Muhammadan rule, but the manner of assessment was arbitrary and the methods of collection iniquitous. The demand was increased or lowered at the caprice of the Nawāb. A curious instance of arbitrary increase is on record. A sum of Rs. 5,000 was added to the demand on the village of Nannūr because a horse belonging to the Nawāb died there. The result of these exactions was that the inhabitants fled and land was left waste. After the assumption of the territory by the British in 1839, a *ryotwāri* settlement was introduced in 1840. This was followed in 1841 by a rough field survey which took two years to complete; and in 1843 the Commissioner, Mr. Bayley, prepared an elaborate scheme of field-assessment. His successor urged a reversion to the renting system, but the Board negatived the proposal. The *ryotwāri* system was continued, and the only general change in the assessment was the abolition of the tax on special products. The great rise in prices which had taken place since the assumption of the territory compensated in some measure for the heaviness and inequalities of the assessment, though temporary remissions were granted year after year. All these inequalities were eventually removed by a survey and settlement on modern principles. In 1858 a new survey was begun, and the settlement was introduced

in 1865 and completed in 1868. The survey found an excess in the cultivated area of $3\frac{3}{4}$ per cent. over that shown in the revenue accounts of the whole District, but the enhancement of revenue, consequent upon the settlement, was proportionately less. The average assessment on 'dry' land is now Rs. 1-4-11 per acre (maximum Rs. 5, minimum 4 annas), and on 'wet' land Rs. 5-14 (maximum Rs. 10, minimum Rs. 2-8).

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	17,96	19,63	22,87	21,18
Total revenue . .	20,82	27,18	31,46	30,50

Outside the two municipalities of Kurnool and Nandyāl, local affairs are managed by the District board and the four *tāluk* boards of Rāmallakota, Nandikotkūr, Nandyāl, and Mārkāpur, the areas under which correspond with those of the four administrative subdivisions. The total expenditure of these boards in 1903-4 was 2 lakhs, nearly half of which was laid out on roads and a third on medical services and institutions. The chief source of their income is, as usual, the land cess. A portion of the cess is reserved for future expenditure on railways. In addition, the affairs of sixteen of the smaller towns are managed by Union *panchāyats* established under Madras Act V of 1884.

The head of the police in the District is the Superintendent, who has an Assistant at Nandyāl. There are 81 police stations; and in 1904 the force numbered 932 head constables and constables, working under 19 inspectors, besides 806 rural police. There are 12 subsidiary jails which can collectively accommodate 808 prisoners.

As in the other Deccan Districts, education is very backward in Kurnool. It stands nineteenth among the twenty-two Districts of the Presidency in the literacy of its population, of whom only 4·2 per cent. (7·9 males and 0·4 females) are able to read and write. Mārkāpur and Pattikonda are the least literate, and Nandyāl is the most advanced, among the *tāluks*. The total number of pupils under instruction in 1880-1 was 5,437; in 1890-1, 10,275; in 1900-1, 16,122; and in 1903-4, 18,290. On March 31, 1904, 656 institutions were classed as public, of which 5 were managed by the Educational department, 97 by local boards, and 6 by municipalities, while 292 were aided by public funds and 256 were unaided but conformed to the rules of the department. Of these, 647 were primary, 7 were secondary, and 2 training schools. There were, in addition, 116 private schools, with 1,681 pupils. Two of these, with a strength of 97, were classed as advanced. More than 96 per cent. of the pupils under instruction were only

in primary classes, and only 15 out of the 2,438 girls at school had proceeded beyond that stage. Of the male population of school-going age, 21 per cent. were in the primary stage, and of the female population of the same age 4 per cent., which is rather a high proportion for the Deccan. Among Musalmāns, the corresponding percentages were 38 and 5. The Kurnool Muhammadans are the most illiterate in the Presidency. There were 228 schools for Panchamas, or depressed castes, giving instruction to 900 pupils. A few schools have also been opened for the Chenchus on the Nallamalai hills. There are two high schools, one at Kurnool town and the other at Nandyāl. The total expenditure on education in 1903–4 was Rs. 92,500, of which Rs. 25,000 was derived from fees. Of the total, 78 per cent. was devoted to primary schools.

The District possesses 3 hospitals and 12 dispensaries, which contain accommodation for 60 in-patients. In 1903 the number of cases treated was 118,000, of whom 830 were in-patients, and 1,900 operations were performed. The expenditure amounted to Rs. 25,400, the greater part of which was met from Local and municipal funds.

Vaccination has of late been receiving considerable attention, and in 1903–4 the number of persons successfully treated by the Local fund and municipal vaccinators together was 33 per 1,000, compared with a Presidency average of 30. Vaccination is compulsory in the two municipalities, but in none of the sixteen Unions.

[For further particulars of the District, see the *Kurnool District Manual*, by Gopalkristnamah Chetty (1886).]

Kurnool Subdivision.—Subdivision of Kurnool District, Madras, consisting of the RĀMALLAKOTA and PATTIKONDA *tāluks*.

Kurnool Town.—Head-quarters of the District and subdivision of the same name, Madras, situated in 15° 50′ N. and 78° 4′ E., on a low rocky spit of ground at the confluence of the two rivers Tungabhadra and Hindri, 900 feet above sea-level, 33 miles from the nearest railway station (Kurnool Road or Dhone, on the Southern Mahratta Railway), and 350 miles from Madras city. The population in 1901 was 25,376, nearly half being Muhammadans, an unusually high proportion. Christians numbered 369.

The fort is said to have been built by Achyuta Rāya, the successor of Krishna Deva Rāya, the greatest of the Vijayanagar kings. The history of the place is referred to in the account of the District of which it is the capital. The fort has been completely dismantled, except one bastion preserved on antiquarian grounds, which is at present used by the police as a powder-magazine. The tomb of Abdul Wahāb, the first Muhammadan governor, on the bank of the Hindri, which was built in A.D. 1618, is the only other antiquity in the place that deserves mention.

Kurnool is the head-quarters of the Collector and of the usual District staff. Being situated in a hollow, the place is very sultry in the hot season. Formerly it was regarded as one of the most unhealthy stations in the Presidency, but since the introduction of a water-supply its salubrity has considerably improved.

Kurnool was constituted a municipality in 1866. The receipts and expenditure during the ten years ending 1900–1, excluding loans from Government, averaged Rs. 42,000. In 1903–4 they amounted to Rs. 57,000 and Rs. 51,500 respectively. Most of the income is derived from the taxes on houses and land, tolls, and the water rate. Formerly the water-supply of the town was brought by means of open channels from the irrigation canal which flows close by. This water was greatly polluted during its passage, and water-works were in consequence constructed in 1897 at a cost of 2·6 lakhs, three-fourths of which was contributed by Government. Water is now lifted by two steam pumps from the canal into two settling tanks situated on a high level, and from there passed into four filter-beds, from which it is taken into two service reservoirs carefully preserved from contamination and situated on a level which commands the whole town. The municipality maintains a hospital, with beds for 24 in-patients.

Kurnool shares with Nandyāl the main part of the commerce of the District, and is the centre of the grain trade of the northern half. There are two steam cotton-presses belonging to native merchants. The chief manufactures are carpets and cotton cloths of coarse kinds. A small tannery has been opened recently by a Musalmān. The municipal high school had 183 boys on its rolls in 1903–4. There is also a lower secondary school with 123 boys, under the management of the American Baptist Mission, which has its head-quarters here.

Kurnool-Cuddapah Canal.—An irrigation and navigation canal in Madras, which takes off from the Sunkesula dam across the TUNGABHADRA, 17 miles above the town of Kurnool, and runs for 190 miles through Kurnool and Cuddapah Districts into the PENNER (which is dammed at the junction), and thence to the town of Cuddapah. The canal is a product of the policy, formerly in favour, of attracting private capital and enterprise from England into the field of Indian irrigation. It was constructed by the Madras Irrigation and Canal Company, a body incorporated by Act of Parliament in 1858. This Company originally proposed to execute in the Deccan Districts and Nellore a number of other large irrigation works, the main ideas of which were in part due to Sir A. Cotton; but as it speedily fell into financial difficulties it was required first to complete this canal, and none of the others was ever begun. It worked under a guarantee from the Secretary of State of 5 per cent. on a capital of one million sterling, but by 1866 over £900,000 had been spent and the canal was still incomplete;

£600,000 was then obtained from Government by debentures, but by 1872 the whole £1,600,000 had been expended and the canal was still unfinished. The undertaking was eventually bought in 1882 by the Secretary of State for £1,700,000. It has never been a success. Its alignment was faulty; its construction was defective, so that in places it will not pass even one-half the quantity of water which it was designed to carry; and it runs through an area in which, owing to the great fertility of the soil, it pays the ryots better to raise crops without irrigation than to undertake the expensive system of cultivation which is necessary to the growing of rice or other irrigated crops. The net revenue from the work is therefore only Rs. 67,000, which is insufficient to pay even ½ per cent. on its capital cost. The navigation along it is negligible in amount. The protection it affords in bad seasons to the extremely arid area through which it runs is, however, of great importance; and, when rain fails, water is freely taken from it. Several projects are also under contemplation for the utilization, by branch canals, of its water in areas where it will be more readily availed of; and it may perhaps be possible to strengthen it sufficiently to enable it to pass into the Penner a supply which would augment that now derivable from that river for irrigation in Nellore District.

Kurrachee.—District, *tāluka*, and city in Sind, Bombay. *See* KARĀCHI.

Kurram Agency (*Kuram*).—A Political Agency in the North-West Frontier Province, lying between 33° 19′ and 34° 3′ N. and 69° 39′ and 70° 28′ E., and comprising that section of the valley of the Kurram river which lies between the Peiwar Kotal in the west and the borders of Mīrānzai in the east. The Agency has an area of about 1,278 square miles, its maximum length from Thal to the Peiwar Kotal being 72 miles as the crow flies, and its breadth varying from 12 to 24 miles. Bounded on the north by the Safed Koh or 'White Mountain' (called in Pashtū the Spīn Ghar), which separates it from Ningrahār, it adjoins Pāra-Chamkanni and the country of the Māssozai section of the Orakzai and that of the Zaimusht tribe on the east, its south-eastern corner abutting on the Mīrānzai country of Kohāt District. On the south it borders on Northern Wazīristān; and on the south-west and west it is contiguous with the Afghān district of Khost, of which the Jāji Maidān or plain, the Chamkanni country, and Hariob Jāji lie on its western extremity.

Physical aspects.

The principal range in the Agency is the Safed Koh, the crest of which forms the watershed between the Surkhāb river or valley of Jalālābād and the Kurram. In this range the loftiest peak is Sikharām, 15,620 feet above sea-level, which forms the extreme north-west corner of the Agency. From it the range runs almost due east, falling to 14,200 feet

at Badni Sar, the peak above Zerān, and to 11,760 feet at the Agam pass, but rising again to 13,010 feet at the peak above Khanrai in the north-eastern corner of the Agency. From Sikharām a lower range, whose crest forms the western border of the Agency, and which is crowned by the Peiwar Kotal or pass, runs southwards, abutting on the Kurram river. On the south lies a lower and more irregular range, whose crest forms the boundary of Khost. Its highest peak, Khost Khoram, rises to 8,536 feet above the sea, but its mean elevation is only 5,000 feet, the Darwāzgai peak being 6,395 feet. From this range descends a spur through whose extremity the Kurram river appears to have cut a passage opposite Sadda, and which divides the valley into two parts, Upper and Lower Kurram. Upper Kurram is thus almost completely encircled by ranges of hills of varying height, except where the Kurram river enters and leaves it. It is a wide open valley, mostly comprised in the sloping plain formed by the débris from the southern face of the Safed Koh, which descends to the Kurram river and is intersected by numerous streams. In this plain lie Pārachinār, the head-quarters, Shalozān, Kirmān, and most of the principal villages of the Agency. Above Pārachinār the valley attains a width of 15 miles. Lower Kurram is a narrow valley shut in by broken ranges of comparatively low elevation, though it widens to the south-east of Balyamīn.

The only river in the Agency is the Kurram itself, which runs closer to its southern than to its northern border, especially in Upper Kurram. Rising in the hills near Ahmad Khel, it flows at first south-westward, and then turns sharply to the east, entering the Agency near Kharlāchi and thence flowing due east to Kurram Fort. East of that place its trend is somewhat southward; and at Sadda it turns sharply to the south until it reaches Maro Khel, whence it curves south-east as far as Thal, in Kohāt District. On the north it is fed by numerous streams, of which the principal are the Shalozān, Zerān, Kirmān, and Kurmāna; and on the south by several torrents, the Sarkalla, Minawar, and Taoda Shiga being the chief.

In Lower Kurram the scenery is dreary and barren, only relieved by the narrow strips of cultivation along the river banks; but Upper Kurram is one of the most beautiful valleys in the Province, the encircling hills being well wooded and many of the villages picturesque, though the plain is for the most part as yet uncultivated and bare of trees. The climate also varies. In the winter even Lower Kurram is very cold and a bitter wind prevails, while in the summer it is hot and dry. Upper Kurram is never unpleasantly hot even in summer, while in winter snow covers the ground for weeks.

Legend says that the aborigines of Kurram were *deos* or demons who were ruled by their king, the Safed Deo, until the kingdom was over-

come by two brothers, Shudāni and Budāni, from the north. Their descendants held sway for many centuries in Kurram, until they were in turn overwhelmed by invaders from the north.

History.

The authentic history of Kurram begins in 1148, when Bahrām Shāh of Ghazni, after his defeat by Saif-ud-dīn of Ghor, fled to Kurram, whence he returned and recovered Ghazni. In 1163 Muhammad of Ghor was placed in charge of Istia and Kasri-Kajurān by Ghiyās-ud-dīn, Sultān of Ghor, his brother; and in 1176–7 he conferred Sankurān (identified by Raverty with the modern Shalozān) and Kirmān on Tāj-ud-dīn Yalduz. It was at Kirmān that Muhammad of Ghor used to halt every year on his way into India. There too on his last expedition he conferred on Tāj-ud-dīn the black banner, thereby designating him his successor, and after his assassination his body was taken back to Ghazni through Kurram. Kirmān remained Tāj-ud-dīn's capital for a time, and to it he retreated after his defeat by Kutb-ud-dīn Aibak in 1206. But in 1215 he was driven out of Kirmān by the Sultān Muhammad Khwarizm Shāh, who made over Ghor and Ghazni to his son Jalāl-ud-dīn Mankbarni. A few years later the tract was occupied by the Mongols.

In 1235 Saif-ud-dīn Hasan, Karlugh, gained possession of Ghazni, Kirmān, and Baniān (? Bannu), but was driven out of his territories by the Mongols in 1239. After this Kurram disappears from history, until in 1552 Humāyūn, who then held Kābul, occupied it before his reconquest of India. Under Akbar it formed part of the *toman* of Bangash or the Bangashāt, being known as Upper Bangash to distinguish it from Lower Bangash, now Kohāt District. The Afghāns of this tract, called Karlārni Afghāns, were, as a body, disciples of the Pīr-i-Roshan, and hence became known as Roshānias. These sectaries led the Afghān opposition to Mughal rule, and Kurram formed one of their chief strongholds. Although they were suppressed under Jahāngīr, the Mughals appear to have had little real control over Kurram, which was nominally governed, independently of Kābul, by the *faujdārs* of Bangash from Kohāt. On the break-up of the Mughal empire Kurram became part of the kingdom of Afghānistān; but in the meantime the Afghān tribes of Bangash had been overcome by the Tūris, a tribe of Turkish origin belonging to the Shiah sect of Muhammadans, who speak Pashtū and now rank as Pathāns. The Bangash tribes who remain in the valley are now *hamsāyas* or clients of the Tūris.

After the annexation of Kohāt the Tūris, in league with other tribes, repeatedly harassed the Mīrānzai border, attacking the Bangash and Khattak villages in Kohāt. In 1854 an agreement was made with them; but their raids continued, though punitive measures were not resorted to, as the tribe was held to be under the control of the Amīr

of Afghānistān. Their raids increased in audacity, and in 1856 a force under Brigadier-General Neville Chamberlain entered the valley. Compensation, the payment of which was guaranteed by the Afghān governor Ghulām Jān, was exacted, the Tūris agreeing to pay Rs. 8,630. In 1859 the Tūris joined the British expedition against the Kābul Khel Wazīrs; but their feud with that tribe subsequently gave much trouble, reprisals being undertaken by Wazīrs in British territory for Tūri outrages, and in 1876 serious disturbances arose between the Bangash of Lower Kurram and the British village of Thal out of a boundary dispute. In 1877 the Tūris were discontented with the oppressive administration of Shāhbāz Khān, governor of Kurram; and when the Amīr demanded from them a contribution of Rs. 50,000 (a poll-tax of Rs. 5 on every adult male) and 6,000 recruits for his war against the British, they revolted and fled to the hills. Attempts to pacify the tribe were unsuccessful for a time, but the Tūris at last agreed to send a *jirga* to Kābul and pay a benefaction of Rs. 25,000, while Shāhbāz Khān was recalled by the Amīr.

In November, 1878, a column under General Roberts entered Kurram from Thal, and occupied Kurram Fort on the 25th of that month. On December 2 the Afghāns were defeated at the Peiwar Kotal, and on the 26th a British force marched from Kurram into Khost, which was occupied till the end of January. The conclusion of peace in May, 1879, prevented further operations, until in September of that year, on the reopening of the war, General Roberts's force, which had remained in occupation of Kurram, again crossed the Shutargardan. The Tūris now co-operated with the British expedition against the Zaimukhts, whose hostility had been marked by the murder of Lieutenant Kinloch; and Kurram was held without further disturbance till its evacuation in October, 1880. The Tūris throughout furnished supplies, their levies were employed in escorting convoys, and they, with the Bangash, petitioned that the British should take over the valley and free them from Afghān rule; but it was determined to evacuate the country and the tribe was declared independent. Internal feuds broke out in a few months, and throughout 1882–4 the Tūris were constantly fighting among themselves, as well as with the Jājis and Zaimukhts. The administration of the valley was finally undertaken by the British Government, at the request of the Tūris themselves, in 1892.

Population.

The Agency contains 166 villages besides Pārachinār, its head quarters, and in 1901 it had a population of 54,257. Administratively, it is divided into Upper and Lower Kurram. The great majority of the population is Pathān, 44,000, or 81 per cent., being of that race. The Tūris (nearly 12,000) form the strongest element among the Pathān tribes; and next to them are

the Bangash (6,000), the Chamkannis, Ghilzai, Mangals, and Orakzai. The few Hindus are nearly all Aroras, that caste numbering nearly 2,000. The language of the people is Pashtū, but Hindkī is spoken by the resident Hindu population. Hindkī or Hindko is the Pashtū name for Western Punjābi as spoken by Hindus and some other people, e.g. the Peshāwar city folk, along the frontier. Agriculture is virtually the sole occupation of the people, as nothing but the most primitive industries are carried on; and all but the barest necessaries of life are imported into the valley. Silk, for which Kurram was in ancient times famous, is still produced and manufactured.

Agriculture, &c.

Wherever water is available for irrigation, the soil is highly productive; but, owing to the absence of a settled government and the internal feuds of the people, the cultivable area is not all under cultivation, and irrigation is carried on only by small channels constructed and maintained by a single hamlet or family. Hitherto the autumn harvest of rice, maize, and oilseeds has been the more important, and it pays two-thirds of the land revenue; but the spring harvest of wheat, barley, and clover is of increasing value. Apples, pears, grapes, cherries, pomegranates, peaches, and a fruit peculiar to the Kurram and Tīrāh, known as the *shalīl*, also grow; and with improved communications fruit-growing will probably become an important industry. Famine is unknown in Kurram.

Kurram is now accessible from Kohāt by the Khushālgarh-Kohāt-Thal branch of the North-Western Railway. This does not enter the Agency, but a good tonga road runs from the terminus at Thal to Pārachinār (54 miles), crossing the Kirmān stream by a fine bridge. From Pārachinār the road is unmetalled and passes via Kharlāchi to Hariob. Unmetalled roads or bridle-paths also lead from Pārachinār to Peiwar, from Kharlāchi to Peiwar, from Mīr Jamāl to Uchadarra, and from Pārachinār to Walai China via Lakka Tigga. All were constructed in 1893.

Administration.

For administrative purposes the Agency is divided into Upper and Lower Kurram, each being under a *naib-hākim*, stationed at Pārachinār in Upper, and Sadda in Lower Kurram. The *naib-hākims* are under the control of the Political Agent, who is also aided by a Revenue Assistant.

The Indian Penal Code, the Criminal Procedure Code, the Frontier Crimes Regulation, the Frontier Law and Justice Regulation, and the Murderous Outrages Regulation have been extended to Kurram, while *Tūrizūna* or the customary law of the Tūris is enforced, all cases being settled by the Political Agent and his Assistants. The *Tūrizūna*, though unwritten, is well-known to the *maliks* or heads of tribes, and they decide what the custom is in any given case. The cases of a civil character are chiefly for the recovery of loans, possession of land,

declaration of rights to water, questions of inheritance, possession of women, and disputes relating to revenue. Murder and violent crime are not very common, the chief offences being robbery and theft, especially of cattle, arson, mischief to fruit trees, and abduction.

The rates of land revenue paid under Afghān rule varied from R. 1 to Rs. 2 per *jarīb* (about half an acre), but various other taxes were also levied. Thus the governor in 1886 fixed a poll-tax at Rs. 2-8 on menials (barbers and Dums or minstrels), and at Rs. 3-8 on artisans and adult male Hindus. Each mill paid Rs. 3-8 a year, and dues were levied on all sales of ponies and cattle. These taxes were equal in amount to the land tax, and the valley was farmed for a total sum of a lakh.

The aim of the British Government was at first to carry on the revenue administration as far as possible on the Afghān system. A summary settlement was made in 1893-4, when the amount levied by the Afghān governors was ascertained and distributed in due proportion over individual holdings. The settlement was sanctioned for ten years; and, including *mālikāna* on crown lands, revenue from mills, and taxes on artisans' shops (the latter being a substitute for the poll tax), the demand amounted to Rs. 67,300 (Kābuli). The all-round rates adopted were (in Kābuli currency) Rs. 3-5 per acre of cultivated land, Rs. 3-8 per mill, and Rs. 2-8 to Rs. 3 per artisan's shop. Cash payments or remissions of revenue amounting to about Rs. 19,000 were granted to leading men for political services or assistance in general administration, while smaller grants were sanctioned for the upkeep of shrines, mosques, temples, and especially *mātim kotāhs* or Shiahs' mourning houses.

No regular measurements were made, but the cultivated area was estimated roughly at 30,222 acres. A brief and incomplete record-of-rights was prepared, but some of the complicated tenures were left undecided, and no arrangements were made for keeping the record up to date. A few returns and statements were prescribed for maintaining a check on the collection of the land revenue and for lapsed assignments. Thus the revenue administration consisted of the collection of revenue, reassessment of estates subject to alluvial action, the maintenance of irrigation embankments, and harvest inspections in the crown lands. The revenue work is supervised by the Revenue Assistant, who is also treasury officer. He is assisted by a *mīrāb* (who looks after irrigation), 4 *patwāris*, and a *tahsīl* accountant. The re-settlement of the valley began in 1904. It involves the conversion of the assessment from Kābuli into British rupees, and the preparation of a regular record-of-rights, including definitions of the different kinds of tenure, pedigree tables, irrigation customs, and maps of the cultivated land based on accurate measurements, and the reorganization of the

revenue staff. The new demand is Rs. 71,500 (British) per annum, which in five years will rise to Rs. 88,000.

Police duties are performed by the Kurram militia, a force 1,466 strong under a commandant. The lock-up at Pārachinār has accommodation for 100 prisoners, and two lock-ups at Sadda and Alīzai can each accommodate 10 prisoners.

Kurram stands below all the Districts of the North-West Frontier Province in the literacy of its population, only 1·88 per cent. (987 males and 25 females) being able to read and write in 1901. It possesses seven indigenous schools, now aided by grants from Imperial funds, at Pārachinār and six of the principal villages, besides those in the mosques where the Korān and other religious books in Persian and Arabic are taught; in the *dharmsālas* the Hindus and Sikhs also learn the Granth and other religious books in Gurmukhī. Muhammadan girls are occasionally taught to read the Korān. The Bangash Pathāns of Shalozān are, however, mostly literate, and to their enlightenment is attributed the freedom from superstition which characterizes the rest of the valley.

There are two civil dispensaries—at Pārachinār and Alīzai—with accommodation for 12 male in-patients, and a female ward for 4 in-patients at the former, besides two military hospitals. In 1903 the number of cases treated was 16,472, of whom 323 were in-patients. The expenditure was Rs. 4,763, met from Imperial funds.

A vaccinator is posted at Pārachinār, and 1,708 persons were successfully vaccinated in the Agency in 1903–4.

Kurram River. — River in the North-West Frontier Province, which rises at the base of the Rokian defile in Afghānistān and, after traversing the Khost district of that State, enters the country of the Tūris or the Kurram Valley proper near Kharlāchi, 40 miles from its source. It then flows south-east for about 55 miles, through the whole length of the Political Agency of Kurram, till it reaches Thal in Kohāt District. Here it turns southward through the country of the Kābul Khel Wazīrs, and after receiving the Kaitu river, which drains the Afghān district of Khost, it enters Bannu. Traversing that District with a south-easterly course it cuts its way through a narrow gorge, known as Darra Tang, in the hills that encircle Bannu District, into the Isa Khel plain, and falls into the Indus opposite Miānwāli. In its course through the Kurram Valley it is mainly fed by streams from the Safed Koh, the chief of which are the Kirmān and Kurmāna.

Kurseong Subdivision.—Southern subdivision of Darjeeling District, Bengal, lying between 26° 31′ and 27° 0′ N. and 88° 7′ and 88° 31′ E., with an area of 438 square miles. Its population in 1901 was 115,731, compared with 117,642 in 1891, and was contained in one town, KURSEONG, its head-quarters, and 388 villages, the density

being 264 persons per square mile. The subdivision contains two distinct tracts, the northern resembling the adjoining portion of the Darjeeling subdivision, and consisting of great mountain ridges and valleys, while the Silīgurī *thāna* lies in the plains and is a level submontane strip of country. After Kurseong the most important places in the subdivision are SILĪGURĪ, the junction of the northern section of the Eastern Bengal State and the Darjeeling-Himālayan Railways; TINDHĀRIA, where the workshops of the latter railway are situated; and the large marts of Mātigarā and Naksalbāri in the *tarai*.

Kurseong Town (*Karsiāng*).—Head-quarters of the subdivision of the same name in Darjeeling District, Bengal, situated in 26° 53′ N. and 88° 17′ E., on the Lower Himālayas, 4,860 feet above the sea, about 20 miles south of Darjeeling. Population (1901), 4,469. Kurseong is, like Darjeeling, a hill station, but does not enjoy the same reputation as a sanitarium. The town is situated on the Darjeeling-Himālayan Railway and is a centre of the tea trade. It was constituted a municipality in 1879. The income during the decade ending 1901–2 averaged Rs. 10,000, and the expenditure Rs. 9,600. In 1903–4 the income was Rs. 14,000, of which Rs. 9,000 was derived from a tax on houses and lands and Rs. 3,000 from a conservancy rate; the expenditure in the same year was also Rs. 14,000. Unfiltered water is supplied from a municipal reservoir, which is fed by springs. The town contains the usual public offices, including a sub-jail with accommodation for 24 prisoners, and a dispensary with 16 beds. The principal educational institutions are for the benefit of Europeans and Eurasians: namely, the Victoria boys' school founded in 1879, with 187 boys in 1903–4; and the Dow Hill girls' school founded in 1898 and having 76 girls on its rolls in 1903–4, both of which are aided by Government.

Kurtkoti.—Village in the Gadag *tāluka* of Dhārwār District, Bombay, situated in 15° 22′ N. and 75° 31′ E., 25 miles east of Hubli. Population (1901), 5,247. It contains four temples with inscriptions, dated from the eleventh to the thirteenth century, and a school.

Kurukshetra.—A sacred tract of the Hindus, lying between 29° 15′ and 30° N. and 76° 20′ and 77° E., in the Karnāl District and the Jīnd State of the Punjab. According to the Mahābhārata, which contains the oldest account of the tract, it lay between the Saraswatī and Drishadwatī (now the Rakshi), being watered by seven or nine streams, including these two. It was also divided into seven or nine *bans* or forests. The circuit of Kurukshetra probably did not exceed 160 miles; and it formed an irregular quadrilateral, its northern side extending from Ber at the junction of the Saraswatī and Ghaggar to Thānesar, and its southern from Sinkh, south of Safīdon, to Rām Rai, south-west of Jīnd. The name, 'the field of Kuru,' is derived from Kuru, the ancestor of

the Kauravas and Pāndavas, between whom was fought the great conflict described in the Mahābhārata; but the tract was also called the Dharmakshetra or 'holy land,' and would appear to have been famous long before the time of the Kauravas, for at Thānesar Parasu Rāma is said to have slain the Kshattriyas, and the lake of Sarvanavat on the skirts of Kurukshetra is alluded to in the Rig-Veda in connexion with the legend of the horse-headed Dadhyanch. Nardak is another name for Kurukshetra, probably derived from *nirdukh*, 'without sorrow.' The Chinese pilgrim, Hiuen Tsiang, who visited it in the seventh century, calls it 'the field of happiness.' Kurukshetra contains, it is said, 360 places connected with these legends or with the cults of Siva and the Sun-god, which have long been places of pilgrimage. Of these the principal are THĀNESAR, PEHOWA, JĪND, SAFĪDON, and KAITHAL; but numerous other sites preserve their ancient names and sanctity.

Kurumbranād.—Coast *tāluk* in Malabar District, Madras, lying between 11° 21′ and 11° 48′ N. and 75° 32′ and 75° 59′ E., with an area of 505 square miles. It contains 104 *amsams*, or parishes. The population increased from 304,077 in 1891 to 327,310 in 1901. The land revenue demand in 1903–4 amounted to Rs. 3,94,000. The head-quarters are at BADAGARA (population, 11,319), the only other place of any importance being QUILĀNDI. The Korapula river forms a portion of the boundary between the Kurumbranād and Calicut *tāluks*. On the east the *tāluk* is bounded by the plateau of the Wynaad, and the line of hills which marks the edge of this forms a picturesque background to the beautiful scenery in which the country abounds. The soil on the east is generally red and lateritic; in the interior it becomes a rich loam, which is sometimes cultivated with rice; while towards the coast it is a loose brown earth of inferior fertility.

Kurundwād.—Petty State and town in the Southern Marāthā Jāgīrs, Bombay. *See* KURANDVĀD.

Kushālgarh.—Estate or petty chiefship in the south-east of the State of Bānswāra, Rājputāna. Its area is 340 square miles, and in physical aspects it is not dissimilar to BĀNSWĀRA. It consists of 257 villages, with a population in 1901 (when the first complete Census was taken) of 16,222, of whom 11,538, or more than 71 per cent., were BHĪLS. The normal revenue, excluding that derived from villages in the Ratlām State, was, prior to the famine of 1899–1900, about Rs. 50,000, but has since fallen to about Rs. 35,000. The village or town of Kushālgarh, the population of which was 2,838 in 1901, contains a post office, a small vernacular school attended by 80 boys, and a dispensary. The estate is of some political interest, in consequence of the position of its holder relative to the chief of Bānswāra. The family belong to the Rāthor clan of Rājputs, and claim descent from Jodh Singh, the founder of Jodhpur city. They appear to have

migrated east, and their earliest possessions were in Ratlām, where they still hold 60 villages and pay a tribute of Rs. 600 a year to the Rājā of that State. In the latter part of the seventeenth century they acquired the country now called Kushālgarh, but accounts differ as to the mode of acquisition. According to the Bānswāra version, the country was taken from the Bhīls by Kushāl Singh, then chief of Bānswāra, and given by him to Akhai Rāj as a reward for services rendered, being named after the donor; but the Kushālgarh family say that it was actually taken from the Bhīls by Akhai Rāj himself, and that it was named after the Bhīl chieftain, Kushla, whom he defeated. However this may be, there is no doubt that a portion of the estate, notably the district of Tāmbesra in the north-west, was granted in *jāgīr* by a chief of Bānswāra, and that the Rao of Kushālgarh, as he has been called since about 1783, pays a tribute of Rs. 550 a year to Bānswāra. In consequence, however, of frequent attempts on the part of the late Mahārāwal to claim rights over the estate to which he was not entitled, Kushālgarh was finally declared to be practically independent of Bānswāra for all purposes other than the payment of tribute and personal attendance on certain occasions, such as the installation of the Mahārāwal and marriages in the latter's family. The Rao's position may be described in general terms as that of a mediatized or guaranteed feudatory; he pays tribute to Bānswāra through, and corresponds on all matters directly with, the Assistant to the Resident in Mewār. He exercises civil and criminal powers in his own estate; but the proceedings in all heinous cases have to be submitted for approval to the Assistant to the Resident, while sentences of death or imprisonment for life are subject to the confirmation of the Governor-General's Agent in Rājputāna.

Kushtagi.—*Tāluk* in Raichūr District, Hyderābād State, with an area of 796 square miles, including *jāgīrs*. The population in 1901 was 95,797, compared with 106,625 in 1891. The *tāluk* contains 236 villages, of which 115 are *jāgīr*, and Kushtagi (population, 3,433) is the head-quarters. The land revenue in 1901 was 1·6 lakhs. Kushtagi is composed chiefly of black cotton soil. The *jāgīr tāluk* of Yelbarga, belonging to the Sālār Jang family, lies to the south-west of this *tāluk*. It has an area of 480 square miles and a population of 67,016, dwelling in 101 villages.

Kushtia Subdivision.—North-eastern subdivision of Nadiā District, Bengal, lying between 23° 42′ and 24° 9′ N. and 88° 44′ and 89° 22′ E., with an area of 596 square miles. The subdivision is a wide alluvial plain of great fertility, the northern boundary of which is formed by the Padmā, while the Mātābhānga bounds it on the south-west. The population in 1901 was 486,368, compared with 482,927 in 1891; this is by far the most populous part of the District, the density being

816 persons per square mile. The subdivision contains two towns, KUSHTIA (population, 5,330), its head-quarters, and KUMĀRKHĀLI (4,584); and 1,011 villages.

Kushtia Town.—Head-quarters of the subdivision of the same name in Nadiā District, Bengal, situated in 23° 55′ N. and 89° 9′ E., on the right bank of the Padmā or Ganges. Population (1901), 5,330. It is a thriving trade centre, with a station on the Eastern Bengal State Railway. Kushtia was constituted a municipality in 1869. The income and expenditure during the decade ending 1901-2 averaged Rs. 7,000. In 1903-4 the income was Rs. 10,000, including Rs. 3,000 derived from a tax on persons (or property tax), and Rs. 2,500 from a conservancy rate; and the expenditure was Rs. 8,000. The town contains the usual public offices; the sub-jail has accommodation for 24 prisoners.

Kūsi.—River of Nepāl and Bihār. *See* KOSI.

Kusiyārā.—River in Assam. *See* SURMĀ.

Kuthār.—One of the Simla Hill States, Punjab, lying between 30° 55′ and 31° 1′ N. and 76° 57′ and 77° 1′ E., west of Sabāthu, with an area of 20 square miles. Population (1901), 4,195. It was founded forty-seven generations ago by a Rājput of Rājaori in Jammu, who had fled from the Muhammadan invaders. After the expulsion of the Gurkhas in 1815, the chief was reinstated by the British. The present chief, Rānā Jagjīt Chand, who succeeded in 1896, is a minor, and the State is managed by Miān Shatrūjit Singh, a member of the Suket family. The revenue of the State is Rs. 11,000, out of which Rs. 1,000 is paid as tribute.

Kutiyāna.—Town in the State of Junāgarh, Kāthiāwār, Bombay, situated in 21° 38′ N. and 70° 10′ E., on the Bhādar river, 25 miles east of Porbandar. Population (1901), 10,287. Kutiyāna is a fortified town with an inner citadel, and is the head-quarters of a *mahāl* or revenue division. Old Kutiyāna or Sākuka-no-timbo is about a mile to the west of the modern town; and there are remains of the foundation of the fort. It was deserted about 1200, and shortly afterwards the present town was founded. Mythological tradition avers that Kundinpur, the residence of the king Bhishmak, the father-in-law ot the god Krishna, stood on the old site. The soil around it is very fertile and large crops are raised by irrigation. The name is said to have been derived from a woman of the Chāran caste called Kunti. Kutiyāna has always been famous for its bards and poets. A fair lasting for two days is held at the temple of Nāgnāth Mahādeo on the 7th and 8th of the dark half of the month of Shrāvan (August).

Kuttālam.—Sanitarium, with a famous waterfall, in the Tenkāsi *tāluk* of Tinnevelly District, Madras, situated in 8° 56′ N. and 77° 16′ E., 36 miles by road from Tinnevelly and 3 from Tenkāsi. Population

(1901), 1,197. Kuttālam receives the rain and cool breezes of the south-west monsoon through a gap in the Ghāts, and thus, though only 450 feet above sea-level, possesses the climate and flora of a much higher elevation. The scenery is extremely picturesque, and the falls of the Chittār are held sacred by Hindus. A beautifully situated temple near these falls is dedicated to Kuttālanāthaswāmi. Kuttālam has always been a favourite resort of the European officials of the District, and in recent years there has been a considerable influx of visitors from all parts of the Presidency during the season, which generally lasts from July to September. Several bungalows and rest-houses for natives are maintained, and it is connected by good roads with all parts of the District. The Mahārājā of Travancore and the British Resident in Travancore and Cochin have residences here.

Kutubdiā.—Island off the coast of Chittagong District, Eastern Bengal and Assam, lying between 21° 43′ and 21° 55′ N. and 91° 49′ and 91° 54′ E., with an area of 35 square miles. Population (1901), 10,693. The island is protected by a ring of embankments constructed and maintained by Government, but these were breached in the cyclone of 1897, which caused great havoc. Almost the whole of the island is a Government *ryotwāri* estate. There is a lighthouse on the west coast.

Kyabin.—Southernmost township of the Upper Chindwin District, Upper Burma, lying between 22° 36′ and 23° 10′ N. and 94° 12′ and 94° 33′ E., with an area of 800 square miles. The population was 7,316 in 1891, and 9,954 in 1901, distributed in 90 villages, Kyabin (population, 338) being the head-quarters. The township lies entirely in the valley of the Taungdwin, which is landlocked, except on the north, and sparsely populated. The area cultivated in 1903–4 was 18 square miles, and the land revenue and *thathameda* amounted to Rs. 26,000.

Kyaikkami.—Coast township in Amherst District, Lower Burma (formerly known as Wagaru), lying between 15° 37′ and 16° 5′ N. and 97° 33′ and 97° 56′ E., south of the Mudon and north of the Yelamaing township, bounded by the Taungnyo hills and the sea, with an area of 928 square miles. The population was 12,988 in 1891, and 15,676 in 1901, distributed in 86 villages, Kyaikkami or Amherst (population, 1,373) being the head-quarters. This village, situated on a bend of the sea-coast in the extreme north-western corner of the township, 30 miles south of Moulmein, was the District head-quarters for a short time after the first Burmese War, but is now of little importance except as a bathing resort and a pilot station. The density of population (only 17 persons per square mile) is low. The area cultivated has more than doubled in ten years, and in 1903–4 was 33 square miles, paying Rs. 27,600 land revenue.

Kyaiklat Subdivision.—North-eastern subdivision of Pyapon District, Lower Burma, comprising the KYAIKLAT and DEDAYE townships.

Kyaiklat Township.—Northern township of Pyapon District, Lower Burma, lying between 16° 23′ and 16° 41′ N. and 95° 26′ and 95° 54′ E., with an area of 277 square miles. The growth of population in the past has been rapid, but most of the township is now under cultivation, and the increase will probably slacken in the future. The population was 47,000 in 1891, and 71,770 in 1901, distributed in the latter year in one town, KYAIKLAT (population, 7,774), the head-quarters, and 394 villages, with a density of 259 persons per square mile. Kyaiklat is flat and fertile. The area cultivated increased from 62 square miles in 1891 to 219 square miles in 1903–4, paying Rs. 2,37,000 land revenue.

Kyaiklat Town.—Head-quarters of the subdivision and township of the same name in Pyapon District, Lower Burma, situated in 16° 27′ N. and 95° 46′ E., on the right bank of the Kyaiklat river, one of the many minor branches of the Irrawaddy, opposite the mouth of the Podok creek. Population (1901), 7,744. It contains the usual public buildings and a hospital with 16 beds. The affairs of Kyaiklat are managed by a town committee constituted in 1900, which will be shortly replaced by a municipal committee. The revenue of the town fund in 1903–4 amounted to Rs. 51,000, and the expenditure to Rs. 39,000, of which nearly half was devoted to public works.

Kyaikmaraw.—Central township of Amherst District, Lower Burma, formerly known as the Ataran township. It comprises the entire drainage area of the Ataran river, lying between 15° 14′ and 16° 36′ N. and 97° 41′ and 98° 35′ E., with an area of 2,457 square miles. In the valley of the Ataran population is dense, but elsewhere there is forest and villages are scarce. The population increased from 42,776 in 1891 to 62,173 in 1901, distributed over 230 villages, Kyaikmaraw (population, 1,597), on the left bank of the Ataran river, 10 miles to the south-east of Moulmein, being the head-quarters. The area cultivated has increased 50 per cent. in ten years, and in 1903–4 was 140 square miles, paying Rs. 1,38,600 land revenue.

Kyaikto Subdivision.—Subdivision of Thaton District, Lower Burma, consisting of the KYAIKTO and BILIN townships.

Kyaikto Township.—Township in Thaton District, Lower Burma, lying between 17° 14′ and 17° 39′ N. and 96° 39′ and 97° 15′ E., to the east of the southernmost reaches of the Sittang, with an area of 607 square miles. It contains 139 villages, and one town, KYAIKTO (population, 6,637), the head-quarters. The population was 29,159 in 1891, and 45,082 in 1901. The Sittang-Kyaikto Canal passes diagonally across the township, which is hilly in the north and east,

but fertile and low-lying in the south-west, and has suffered much from erosion in recent years. The area cultivated in 1903-4 was 120 square miles, paying Rs. 1,27,500 land revenue.

Kyaikto Town.—Head-quarters of the subdivision and township of the same name, in the north-west corner of Thaton District, Lower Burma, situated in 17° 18′ N. and 97° 1′ E., on the Kadat river. It stands at the foot of the hills, on the edge of the flat country which stretches southwards to the Gulf of Martaban, and on the Sittang-Kyaikto Canal, which connects the town with the Sittang, and thus with Pegu and Rangoon, bringing it within a twelve hours' journey of the Provincial capital. Kyaikto is a flourishing trade centre, and its population in 1901 (6,637) was nearly double that of twenty years before. The town was constituted a municipality in 1889. The income and expenditure during the ten years ending 1901 averaged Rs. 16,500 and Rs. 17,400 respectively. In 1903-4 the income was Rs. 20,300 (markets, &c., Rs. 12,100; house tax, Rs. 3,900). The expenditure in the same year amounted to Rs. 22,000 (hospitals and conservancy, Rs. 3,300 each). The municipal hospital has accommodation for 16 in-patients.

Kyangin Township.—Northernmost township of Henzada District, Lower Burma, lying between 18° 7′ and 18° 31′ N. and 94° 54′ and 95° 19′ E., with an area of 478 square miles. The Irrawaddy plain is here narrowed by the approach of the Arakan Yoma, and the western half of the township is jungle-clad and uncultivable. The population increased from 45,828 in 1891 to 46,633 in 1901, and the density (98 persons per square mile) is low compared with the District average of 169. There are very few Karens, the Burmans numbering 95 per cent. and the Chins 4 per cent. of the total. The township contains 243 villages and one town, KYANGIN (population, 7,183), the head-quarters. The area cultivated in 1903-4 was 60 square miles, paying Rs. 82,000 land revenue.

Kyangin Town.—Head-quarters of the township of the same name in Henzada District, Lower Burma, situated in 18° 20′ N. and 95° 17′ E., on the west (right) bank of the Irrawaddy in the north of the District. Population (1901), 7,113; it has decreased in the last decade, apparently on account of emigration to the richer delta areas farther south. The town is, however, still fairly prosperous and has a considerable trade in rice. Kyangin was constituted a municipality in 1886. The municipal income and expenditure during the ten years ending 1901 averaged Rs. 12,300 and Rs. 12,500 respectively. In 1903-4 the income was Rs. 17,000, including Rs. 9,500 from dues on markets and slaughter-houses, and Rs. 2,600 from house tax; and the expenditure was Rs. 16,000, of which Rs. 5,300 was spent on conservancy, Rs. 1,500 on roads, and Rs. 900 on the town

dispensary. The municipality maintains an Anglo-vernacular school, and contributed Rs. 2,000 towards its upkeep in 1903-4. The dispensary is supported entirely by municipal funds. A railway connecting the town with Henzada has been sanctioned, and is at present in course of construction.

Kyaukkyi.—Southern township of Toungoo District, Lower Burma, lying between 18° 0′ and 18° 45′ N. and 96° 26′ and 97° 12′ E., with an area of 1,217 square miles. It is a large township, extending from the Sittang in the west to the border of Salween District in the east. Along the Sittang is a cultivated plain, averaging about 10 miles in width. East of this is hilly country inhabited by *taungya*-cutting Karens. The population was 25,656 in 1891, and 32,226 in 1901 (Burmans, 13,456; Karens, 17,672), distributed in 245 villages, the head-quarters being at Kyaukkyi (population, 1,650). The area cultivated in 1903-4 was 55 square miles, paying Rs. 62,000 land revenue.

Kyaukpadaung.—South-eastern township of Myingyan District, Upper Burma, lying between 20° 32′ and 21° 6′ N. and 94° 59′ and 95° 33′ E., with an area of 724 square miles. Except in the north-east and east, where the country is occupied by the great mass of Popa, the township is flat and the soil poor. The staple in this part is early sesamum, followed by a second harvest; in the eastern part the chief crop is *jowār*. The population was 66,608 in 1891, and 68,043 in 1901, distributed in 304 villages, Kyaukpadaung (population, 907) being the head-quarters. In 1903-4 the area cultivated was 196 square miles, and the land revenue and *thathameda* amounted to Rs. 1,16,000.

Kyaukpyu District.—Seaboard District in the centre of the Arakan Division, Lower Burma, lying between 18° 40′ and 20° 40′ N. and 93° 13′ and 94° 26′ E., with an area of 4,387 square miles. It is bounded on the north by Akyab District; on the east by the Arakan Yoma, which cuts it off from Thayetmyo and Minbu Districts; on the south by Sandoway District; and on the west by the Bay of Bengal.

Physical aspects.

It includes a strip of mainland extending along the western slopes and foot-hills of the Arakan Yoma as far south as the Ma-i river and the large islands of RAMREE and CHEDUBA, with a small archipelago of lesser islets stretching to the north and south along the coast, separated from the mainland by a number of tidal creeks, and surrounding two indentations known as Hunter's Bay and Combermere Bay. Kyaukpyu harbour is the name given to a large area of water extending for 30 miles between Ramree Island and the mainland, with an average width of 3 miles. At its mouth are several dangerous rocks rising abruptly out of the sea, which render ingress at night dangerous. The principal mountain range is the Arakan Yoma, which sends out spurs almost up to the sea-coast, and is crossed at two points, known as the An and

Dalet passes. A chain of low hills traverses Ramree Island from north-west to south-east. There are no rivers of any importance in the District; the An and Dalet streams, which drain the mainland, are navigable by large boats for distances of 45 and 25 miles respectively from their mouths. Above these points they are mere mountain torrents.

The rocks composing the surface are partly Cretaceous and partly eocene. The sandstones and shales of Ramree may be Cretaceous, but no marked characteristics are apparent by which the rocks of the island can be divided into two series. On the island of Cheduba are several mud volcanoes, small conical hillocks of blackish-grey mud, discharging marsh gas and occasionally flames of great brilliancy Except in the case of one of these in Cheduba Island, there have been no explosions of the latter kind for ten years. This volcano broke out once in 1903 and was active during 1904, the eruptions being caused by petroleum gases. On these occasions large masses of dense smoke issue, flames shoot up, it is said, to a height of 1,000 feet, and mud is ejected with great force. It is stated that the last eruption was visible from the deck of a coasting steamer 50 miles away.

The coast is characterized by the mangrove and tidal forests common to all the maritime Districts of the Province, which are described in the Botany paragraph of HANTHAWADDY DISTRICT. Nothing is known of plant-life in the inland portion.

The forests abound with tigers, bears, deer, and wild hog. Wild elephants roam on the Arakan Yoma in the An township.

The climate is notoriously unhealthy, malarial fevers and bowel diseases prevailing, the former at the beginning, the latter at the end of the rains. It is unfortunate that Kyaukpyu town itself, which seventy years ago was said to enjoy comparative salubrity, is situated in what later years have shown to be a specially pestilential area; and it is possible that, if the head-quarters were moved, the District would lose much of its evil reputation. The temperature varies but little throughout the year, averaging 84° in 1900, during which year the maximum temperature, registered in June, was 97°, and the minimum, in January, was 74°.

The rains last from May to October, being heaviest in July, August, and September. The annual rainfall for the whole area during the three years 1902–4 averaged 182 inches. It was greatest at Ramree (203 inches) and least at An (161 inches).

History.

The District was part of the once powerful kingdom of Arakan, and its history is included in the sketch given in the article on the ARAKAN DIVISION. After the conquest of Arakan by the Burmans at the close of the eighteenth century, the mainland portion of the District belonged to Arakan proper, while

Ramree and Cheduba Islands formed separate governorships. On the cession of Arakan to the British the two islands were formed into one District, called Ramree District, and the mainland into the An District; but these two charges were amalgamated nearly thirty years afterwards, and made into Kyaukpyu District. The garrison of Arakan, transferred to Kyaukpyu from Sandoway shortly after the annexation, was withdrawn altogether in 1855.

Population.

The population at the last four enumerations was: (1872) 144,177, (1881) 149,303, (1891) 163,832, and (1901) 168,827. The chief statistics for 1901 are shown in the following table:—

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Kyaukpyu .	416	1	272	42,424	102	+ 1	6,328
Myebon . .	441	...	146	24,109	54	+ 15	5,207
An . . .	2,861	...	353	29,337	10	+ 5	4,691
Ramree . .	449	...	247	46,058	102	− 3	8,968
Cheduba . .	220	...	114	26,899	122	+ 6	4,734
District total	4,387	1	1,132	168,827	38	+ 3	29,928

Along the coast the population is fairly dense, but in the hilly Myebon and An tracts, which border on the Arakan Yoma, the people are more scattered. Burmese is spoken by 42,222, and Arakanese by 109,596. The Chins of the District retain their dialect, practically none speaking Burmese, as many of them do on the other side of the Yoma.

The Arakanese number 128,300 (more than three-fourths of the total population), distributed mainly in the island townships of Kyaukpyu, Cheduba, and Ramree. The Burmans, who are found chiefly in the An and Myebon townships, number 22,600. The Chins come next with 13,300; for the most part they are inhabitants of the hilly An and Myebon townships. There is a fluctuating population of immigrants from Chittagong, who come over for the harvest and sometimes settle and prosper. Musalmāns have lived in the District for centuries, most of them being descendants of natives of Bengal captured in the numerous wars. They numbered 3,700 in 1901, while Hindus were only 420. The population dependent upon agriculture in 1901 was 124,200, or 73 per cent. of the total. Of this number, about 15,260 were dependent on *taungya* cultivation alone. The number of Christians in 1901 was 121, of whom 79 were natives. No missions have been established.

There is no irrigation, and the rice depends entirely on the rainfall,

which is, however, regular and plentiful. The soil, except near the rivers, is not very good, and in the townships of Kyaukpyu and Ramree is sandy. *Taungya* or shifting cultivation prevails in the hills. In 1881 there were 166 square miles cultivated; in 1891, 189; in 1901, 242 square miles.

Agriculture.

The main agricultural statistics for 1903-4 are given below, in square miles:—

Township.	Total area.	Cultivated.
Kyaukpyu	416	54
Myebon	441	58
An	2,861	39
Ramree	449	55
Cheduba	220	40
Total	4,387	246

In 1903-4 rice occupied 227 square miles, of which about 1,000 acres were *mayin* or hot-season rice. The cultivation of sugar-cane, formerly large, has decreased considerably of late, and is now only 450 acres. Tobacco is grown in the townships of Kyaukpyu, Cheduba, and Ramree, covering 2,800 acres. Garden cultivation extends over 3,800 acres, including 400 acres under mangoes. The *dani* palm (*Nipa fruticans*), the leaves of which are used for roofing houses, and which produces a kind of sugar and toddy, is grown on nearly 3,000 acres.

Cattle are more numerous than in the neighbouring District of Sandoway. They are imported from Upper Burma through the An pass. Buffaloes are largely used for cultivation, and thrive better than cattle, owing to the character of the soil. Goats are kept in a few villages by natives of India, but are nowhere bred on a large scale.

Pyingado (*Xylia dolabriformis*) is the most valuable timber tree. From the An southwards it forms compact masses of forest all along the lower hills and the adjoining plains; north of the An to the Dalet it occurs in patches, but north of the Dalet it ceases altogether. *Pyingado* is also met with on the hills of Ramree Island. The An drainage is covered with bamboo forests, each only a few acres in extent, containing *pyingado*. *Kanyinbyu* (*Dipterocarpus alatus*), used for houses and boats and for extraction of wood-oil, is common throughout the District. In Ramree Island *thitya* (*Shorea obtusa*), *pyinma* (*Lagerstroemia Flos Reginae*), and *shawtu* (*Beilschmiedia sp.*) are in request for building purposes. A species of *kokko* (*Albizzia Lebbek*) and *pyinma* are much used for boat-building, for which *kanyinbyu* also is valuable. The Forest department used not to be represented in the District, but proposals for introducing regular administration have lately been sanctioned.

The minerals worked are limestone, clay for pottery and bricks, and petroleum. Two companies are at work with American machinery extracting oil at Yenandaung in the Kyaukpyu township. In places the natives also work on modern lines, though here and there the primitive system of drawing the oil up in earthenware pots from holes about 4 feet in diameter is still seen in operation. Petroleum is sold at 4 annas per maund at the well mouth. Rather more than 100,000 gallons is produced annually. Limestone is extracted from the hills in the Ramree and Cheduba townships. Iron in Ramree Island and coal in Ramree and Cheduba Islands have been discovered, but are not worked.

Trade and communications.

The manufacture of salt by evaporation of sea-water is carried on in the Kyaukpyu and Ramree townships. The sea-water is passed through five pans, remaining for some days in each, so as to evaporate, and is then run into a salt-tank. Finally it is poured into earthen vessels and boiled. The output of the District in 1903 was about 41,000 cwt., of which almost half was exported. Mat-weaving and pottery of the roughest kind are the only other manufactures. Very few potters possess a wheel; as a rule they use only a flat stick for modelling. The clay used is procured locally from the neighbouring hill-sides. Unlike the Burman, the Arakanese is a poor carpenter, and for bridge-building labour has to be obtained from India or other parts of Burma. The census returns show that there are many boat-builders in the District.

There are very few traders, though a few shops kept by natives of India are to be found in Kyaukpyu and Ramree. Kyaukpyu is a port of some local importance. The exports are rice, salt, timber, fish-maws, hides, and horns, sent for the most part to Akyab. The imports are mainly hardware, food-stuffs, cloth, *longyis* (waistcloths), cotton, and silk. Statistics of the trade of KYAUKPYU will be found in the article on that town.

Trade is chiefly in the hands of the British India Steam Navigation Company, whose steamers call weekly at Kyaukpyu in both directions, giving communication with Akyab, Sandoway, and Rangoon. Subsidized launches maintain weekly services to the head-quarters of the townships, and launches run also to Akyab and Sandoway. Kyaukpyu had no direct telegraphic connexion with the rest of Burma until 1906. Messages used to be sent by special messenger to a station about 50 miles from head-quarters. There are no metalled roads of any length in the District, the usual method of communication being by boat, but even boat travelling is impracticable during the monsoon. Tracks lead into Upper Burma over the main passes. The Dalet pass is difficult and but little used, but the road over the An pass is a trade route of some local importance. A lighthouse will probably be erected on Beacon Island off Cheduba.

The District contains five townships: the AN township in the north-east, the MYEBON township in the north-west, and the island townships of RAMREE, KYAUKPYU, and CHEDUBA. In 1904 Myebon, An, and Kyaukpyu were grouped together in the Kyaukpyu subdivision. The townships are in charge of the usual executive officers. The head-quarters treasury is supervised by the assistant magistrate, and there is an *akunwun* in charge of the revenue. The District forms a subdivision of the Arakan Public Works division, conterminous with the civil Division. The land records staff consists of a superintendent, 3 inspectors, and 31 surveyors, and there are 540 village headmen for the maintenance of order in the interior.

Administration.

The Deputy Commissioner of Kyaukpyu is also District Judge. With the exception of the Kyaukpyu township court, all the township courts are presided over by the respective township officers. The Kyaukpyu township judge, who is also treasury officer and head-quarters magistrate, has Small Cause jurisdiction up to Rs. 50 within the Kyaukpyu municipal limits. The criminal courts are presided over by the executive officials; at Kyaukpyu town there are four magistrates, in addition to the Deputy-Commissioner. The work of the criminal courts is not heavy, though thefts and assaults with dangerous weapons are common. There are benches of honorary magistrates at Kyaukpyu and Ramree.

Under native rule the taxes levied were the same as in other Districts: namely, imposts on houses, trades, forest produce, and the like. The earliest step towards a regular assessment appears to have been made in 1828, when a rough scale of rates was drawn up by the Superintendent and approved by the Bengal Government. An attempt was made in these early days to collect land revenue on the Indian *zamīndāri* principle, but the experiment seems to have been doomed to failure from the outset. A portion of the District, comprising an area of about 680 square miles, was settled in 1898–9, when the rates on rice land varied from 10 annas to Rs. 2–8 per acre, while garden lands were assessed at rates varying from Rs. 2 to Rs. 4 per acre. In 1905 a summary settlement dealing with a further area of about 600 square miles was effected. In this area rice land is assessed at rates varying from Rs. 1–4 to Rs. 2–1–2 per acre. Garden land, plantains, and *dani* pay Rs. 2 per acre, while miscellaneous cultivation (including betel-vine) is assessed at Rs. 2–8 per acre, and each solitary fruit tree at 2 annas. The table on the next page shows how the revenue has increased since 1880–1, the figures representing thousands of rupees.

The total revenue for 1903–4 includes capitation tax (Rs. 1,70,000) and excise (Rs. 1,40,000).

The District cess fund, chiefly derived from a 10 per cent. levy on

the land revenue, is administered by the Deputy-Commissioner for the maintenance of communications, &c. The income in 1903-4 was Rs. 35,000. KYAUKPYU is now the only municipality, though Ramree was a municipality up to 1899.

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	1,49	1,62	2,20	2,37
Total revenue . .	5,06	4,42	5,39	5,67

Under the District Superintendent of police are 2 inspectors, 4 head constables, and 236 rank and file, distributed in 10 police stations and 4 outposts. The military police belong to the Rangoon battalion, and are kept at head-quarters and changed every six months, a measure rendered necessary by the unhealthiness of the District; they number 60, commanded by a *jemadār*. At the District head-quarters is a jail with accommodation for 146 male and 14 female prisoners, who are chiefly employed in mat-making and coir-pounding.

Small interest is taken in education; and the *pongyis*, who are few in number and are said to lack enthusiasm, do but little to further the efforts of the deputy-inspector of schools, who is in educational charge of the District. There is an Anglo-vernacular school at Kyaukpyu, and a few lay schools have been opened in the township head-quarters, but no schools are maintained for the Chins of the neighbouring hills.

With education stagnant, it is not surprising that the standard of literacy is low. The percentage of literate males is 34 and of literate females 3, compared with 38 and 4·5 for the Province as a whole. For both sexes together the proportion is 18 per cent. The number of pupils rose from 643 in 1881 to 1,609 in 1891 and 2,308 in 1901. In 1903-4 the District contained 5 secondary, 83 primary, and 155 elementary (private) schools, attended by 4,628 pupils (222 girls). The educational expenditure was Rs. 8,900, towards which municipal funds contributed Rs. 1,500, the District cess fund Rs. 4,200, Provincial funds Rs. 1,300, and fees Rs. 1,900.

The only hospital is at Kyaukpyu, with 30 beds. In 1903 the number of cases treated was 7,970, including 319 in-patients, and 122 operations were performed. The Government contribution was Rs. 950, while the District cess fund granted Rs. 900, and Rs. 300 was subscribed by the public. The balance of the cost was borne by the municipality.

Vaccination is compulsory within municipal limits. In 1903-4 the number of persons successfully vaccinated was 7,215, representing 43 per 1,000 of population.

[Maung Pan Hla, *Settlement Report* (1900).]

Kyaukpyu Subdivision.—Subdivision of Kyaukpyu District, Lower Burma, consisting of the KYAUKPYU, MYEBON, and AN townships.

Kyaukpyu Township.—Coast township of Kyaukpyu District, Lower Burma, lying between 19° 5′ and 19° 38′ N. and 93° 30′ and 93° 56′ E., with an area of 416 square miles. It consists for the most part of the north-western half of the island of RAMREE. The population in 1901 was 42,424, a total only 408 greater than it had been at the preceding (1891) enumeration. It contains one town, KYAUKPYU (population, 3,145), the head-quarters of the District and township; and 272 villages. In 1903-4 the area cultivated was 54 square miles, paying Rs. 51,000 land revenue.

Kyaukpyu Town.—Head-quarters of the District of the same name in Lower Burma, situated in 19° 26′ N. and 93° 34′ E., in the northern angle of the island of Ramree. Kyaukpyu signifies 'white stone,' and the name is said to be derived from the white pebbly beach that stretches in front of the town. When Arakan was ceded to the British in 1826 Kyaukpyu was only a small fishing village, and did not become the chief civil station till 1838. The town is built close to the sea-shore, on a sandy plain bounded on the south-west by a low range of sandstone hills, which break the severity of the monsoon. The harbour extends for many miles along the east shore of Ramree Island, but numerous sunken rocks render the approach dangerous, though it is well buoyed. The population of the town has remained stationary for the last thirty years, and was 3,145 in 1901, of whom the majority were Arakanese and Burmans. Musalmāns numbered 776, Hindus only 164, and Chinese about 600.

The shipping trade of Kyaukpyu is almost entirely coastwise. Its imports and exports were valued at 4 and 1½ lakhs respectively in 1903-4. Three-fourths of the imports come from other Burmese ports; the remainder from Calcutta. The exports go entirely to Burmese ports. The Port fund for the maintenance of buoys, lights, &c., had an income in 1903-4 of Rs. 5,600, obtained from dues and other levies.

Kyaukpyu town was constituted a municipality in 1885. The income and expenditure during the ten years ending 1901 averaged about Rs. 8,000. In 1903-4 the income was Rs. 11,000, including Rs. 3,000 from house and land tax, and Rs. 6,000 from market tolls; and the expenditure was Rs. 10,000, the chief items being conservancy (Rs. 2,000), hospitals (Rs. 3,000), and education (Rs. 1,500). There is one Anglo-vernacular school, towards the upkeep of which Government and the municipality contribute equally.

Kyaukse District.—Northernmost District of the Meiktila Division, Upper Burma, lying entirely in the dry zone, between 21° 12′

and 22° 1′ N. and 95° 57′ and 96° 54′ E., with an area of 1,274 square miles. It is bounded on the north by the Myitnge river, which separates it from Mandalay District; on the east by the Shan States of Lawksawk and Maw; on the south by Meiktila District; and on the west by Myingyan and Sagaing.

Physical aspects.

Kyaukse consists of a strip of plain land running north and south parallel to the line of the Shan hills, and of a stretch of hilly country, known as Yeyaman, extending eastwards from the northern end of the level plain into the heart of the Shan uplands. This latter tract, which is bounded on the north by the Myitnge river, and on the east and south by Lawksawk and Maw, has an area of about 711 square miles, or more than one-half of the total area of the District. It is, however, very rugged and mountainous, and deeply scored with ravines, and has a very sparse population.

Extending from the Yeyaman tract to the south runs the Kinle range, forming part of the eastern boundary of the District. Near the southern end of these hills is an eminence known as the Natteik, about 5,000 feet high, the highest point in the range, at the foot of which a pass leads into the Southern Shan States, used by caravans to and from Myittha, a village on the railway 12 miles south of Kyaukse. West of the Yeyaman tract and the Kinle range the surface of the country is generally level, except for some outlying groups of low hills, which rise abruptly from the surrounding plains east of the railway to heights ranging from 600 to 1,600 feet above the sea. These masses of rock, which are rough and steep, are covered with sparse jungle and stunted trees, and stand up like islands out of the cultivated level that encircles them. The plain covers an area of 565 square miles, and has a gentle slope from south to north.

The scenery of Kyaukse is varied and picturesque. In the irrigated plains, where crops of different kinds follow one another in quick succession, the breadth of view and blending of colours make a charming and ever-changing picture. In the Yeyaman tract the prospect is rugged but fine. Thick forest clothes the hill slopes, and the villages are very few and widely scattered. The Myitnge, Nam Tu, or Doktawaddy river, which forms the northern boundary of the District for 60 miles, rises in the Northern Shan States, and joins the Irrawaddy at Ava in Sagaing District. It flows from east to west, and is navigable up to the foot of the hills by small steamers and country boats of all descriptions. Its width is from 200 to 350 yards, and it runs between high, firm banks, studded with villages, gardens, and mango groves. The railway crosses it by a bridge in the extreme north of the District. The Panlaung rises on the borders of Yamethin District and the Shan States, flows diagonally across the District from its south-eastern to its

north-western corner, and empties itself into the Myitnge near where that stream enters the Irrawaddy. Its only affluent worthy of mention is the Samon, which comes in from Meiktila District, runs northwards, almost parallel to it, and joins it at Shabin in the north-west of the District. The Samon is navigable by small boats during the rainy season, but then only as far as Paukmyaing in the Myittha township. It is liable to sudden floods, and, its bed being low, it is useless for irrigation. The Zawgyi river waters the northern portion of the District, and is not navigable. It rises in the Shan hills, reaches the plain near Taungdaw in the east of the Kyaukse township, flows in a north-westerly direction past the town of Kyaukse, and eventually empties itself into the Myitnge some distance to the east of its junction with the Irrawaddy. During the dry season it is very shallow, its water being taken off by canals; but in the rains it becomes swift and turbulent, and a constant source of danger to the railway line, which crosses it at two points.

Kyaukse contains no lakes properly so called; but there are several large swamps, the chief of which are the Sunye and Minhla tanks, and the Paleik and Inhlya fisheries.

Little is known of the geology of the District; but it includes the western edge of the Shan plateau, where crystalline rocks are largely developed, forming bands of crystalline limestone. In the hills, granite, marble, limestone, sandstone, and light clays predominate, and in the valleys rich alluvial leaf-mould and loam. The soil of the irrigated plains is chiefly black loam, with a layer of leaf-mould silt deposited by the canals. In the unirrigated tracts, in the strip of land bordering the hills on the east, red clay or red clay mixed with gravel prevails, while to the west of the Samon river the levels are composed chiefly of black cotton soil.

Only shrubs and small trees are usually met with in the plains. Here bamboos are scarce, and such as are used come chiefly from the Shan hills and the Yeyaman tract. In the hills the vegetation is richer. On the higher ground pine and stunted oak occur, and on the lower slopes *pyingado* (*Xylia dolabriformis*) and a certain amount of teak.

Tigers are found, but only occasionally. Leopards, on the other hand, are fairly numerous in several parts of the District. Barking-deer, wild hog, *thamin* (brow-antlered deer), and *sāmbar* are sometimes met with in the uncultivated tracts. At the proper season the paddy-fields abound with snipe.

Kyaukse is situated in the centre of the dry zone, and its climate is hot and arid. The rainy season does not usually commence before July, and generally ends in October, though occasional heavy downpours during April, May, and June bring temporary relief. The cold season lasts from about the middle of November to the end of

February. The thermometer then ranges, as a rule, between 47° at night and 84° in the hottest part of the day. From March to July during the hot season a temperature of as much as 105° in the shade is not uncommon. Strong winds throughout the day, however, render this heat less oppressive than it might otherwise be. During November, December, and January the mornings and evenings are sometimes very cold, and heavy mists hang over the face of the earth. Fever of a very severe type, from which many deaths occur, is prevalent at this time.

During the ten years ending 1901 the annual rainfall averaged 29 inches over the plains of the District, being heaviest at Taungdaw, at the foot of the Shan hills. The rains are variable, however, and unevenly distributed. The lightest fall during the decade was $20\frac{1}{2}$ inches at Paleik in the north, and the heaviest 40 inches at Kume in the south, registered in 1896 and 1899 respectively. In the hilly Yeyaman tract there is no registering station, but it is estimated that about 40 or 50 inches fall in the year.

The Zawgyi, Panlaung, and Samon rivers are all liable to overflow their banks during the rains. The most destructive flood recorded of late years occurred in August, 1898, when a great part of the District west of the railway line, which was breached south of Kyaukse town, was inundated by the Zawgyi. The town itself was flooded on this occasion, and great damage was done to standing crops.

History.

The non-legendary history of the District prior to the occupation of Upper Burma presents no features of special interest. During 1886, shortly after annexation, the Myinzaing prince, who had escaped the general massacre of Mindon Min's descendants ordered by Thībaw, and was at the time seventeen years of age, headed a rebellion, the quelling of which gave the authorities considerable difficulty. He was driven out of Mandalay District in January, 1886, and, after being followed to Kyaukse, took up his head-quarters at Yakaing-gyi, 23 miles to the south-east. He was forced back into the Shan States by the establishment of posts at Paleik and Taloksu, in the north of the District, and south of Kyaukse a line of posts was formed on the road to Pyinmanā. At Kume, one of the line of posts, Captain Wilbraham and a lance-corporal of the Somersetshire Light Infantry were killed early in 1886. The prince died in August of the same year; but dacoits, frequently assuming his name, for some time made raids on the part of the District lying at the foot of the Shan hills, and infested the jungles along the Samon and Panlaung rivers, where the nature of the country was adverse to rapid movements of troops except in the hot season. In 1887 considerable trouble was caused by a band of dacoits, who took refuge in the adjoining Shan State of Maw. They were twice dispersed,

only to unite again under the Setkya Mintha, a pretender from Mandalay District, who appeared on the scene towards the end of the year. They were dispersed by an expedition loyally aided by the Shan ruler of Maw, but again raided the District in 1888. However, their leader was eventually captured by the Lawksawk Sawbwa, handed over to the authorities, and duly executed. One of his lieutenants, Kyaw Zaw, continued to harry the wilder hill tracts in the north-east for some time; but in due course he was forced to move into the Shan States, and the District may be said to have been finally settled in 1889, when the garrison of military police was considerably reduced.

Some shrines of note are situated in the District, the most important of which are the Shwepwinlan, Pandingu, Mataingda, Shwezedi, Pyetkaywe, Shwemoktaw, Shweminwun, Tonbo, Taungdaw, Shwesatthwa, and Shwethayaung pagodas. Most of these are said to have been built by king Anawrata in the eleventh century; but the Shwemoktaw near Daing in the Myittha subdivision is attributed to king Thiridhammathawka, and is declared to be over 2,000 years old. The Shwemoktho pagoda at the foot of Kyaukse hill is said to have been originally erected by Asoka, and to have been rebuilt by king Anawrata of Pagan to commemorate the construction of the Kyaukse weir. It was kept in repair by the Burmese kings of the last dynasty. Annual festivals are held near the most important of these shrines, and are largely attended by the inhabitants of Kyaukse and other Districts.

Pinle and Metkaya in the south of the District were capitals of two of the Shan principalities which came into existence on the break-up of the Pagan kingdom, and lasted from the middle of the fourteenth to the beginning of the sixteenth century. They were founded by three Shan brothers who dethroned king Kyawzwa, the son of king Narathihapade (nicknamed Tayokpyemin), in whose reign the Pagan dynasty collapsed. The history of two other cities, Hmaingmaw and Pyinmanā, has not been satisfactorily traced. Hmaingmaw is a Shan name, which suggests that this town also was built by Shans. According to one tradition, the original founder of this city was a Karen Sawbwa who assumed the name of Thudanu. This chieftain was a man of grossly evil habits; and the story runs that, as a punishment for his sins, the clouds rained sand till the city was buried and all its inhabitants were destroyed. The size of each city is about a mile square. The remains of the old walls are still visible, the bricks of which they were constructed having been very sound. The old city of Myingondaing stood on the banks of the Panlaung to the north-east of Myittha, but only the walls are now in existence. When this town was built it is difficult to say; but it has been abandoned for a very long time, and thick jungle has sprung up within the walls.

Population.

The population of Kyaukse District was 126,622 in 1891 and 141,253 in 1901. Its distribution in the latter year is shown in the following table:—

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Singaing . .	825	...	169	40,123	49	+ 8	4,599
Kyaukse . .	172	1	231	44,378	258	− 3	9,896
Myittha . .	277	...	310	56,752	205	+ 30	11,673
District total	1,274	1	710	141,253	111	+ 12	26,168

KYAUKSE, the head-quarters, near the centre of the District, is the only town. The District is one of the most thickly populated in Upper Burma. The density varies enormously from tract to tract; thus while the Kyaukse township exhibits the comparatively high figure of 258 persons per square mile, in Yeyaman the density is only about 2. Between 1891 and 1901 the population of the Kyaukse township decreased; but the fall was confined to the town of Kyaukse, and the rural area showed an increase during the decade. Immigrants from Mandalay, Sagaing, Meiktila, and Myingyan are numerous; but there has been no corresponding emigration to those Districts, nor has the emigration to Lower Burma been sufficient to cause a net decrease. This is to some extent due to the greater certainty of agricultural success in Kyaukse, owing to the protection afforded by canals. About 98 per cent. of the people are Buddhists. There were 3,400 Musalmāns and 700 Hindus in 1901, and the number of Christians was 438. Burmese is the vernacular of all the inhabitants except about 1 per cent., who chiefly speak Indian languages.

The number of Burmans in 1901 was 135,400, or just under 96 per cent. of the total population. There are a few Shans and Danus in the eastern part of the District, and the Indian immigrants numbered 1,200 in 1901. Only a portion, however, of the Musalmāns and Hindus enumerated in the District were pure natives of India. Several Musalmān villages are inhabited by the half-bred descendants of Mughal mercenaries who settled in the country several centuries ago, and the total of these Zairbādis was returned in 1901 as 2,800. The population directly dependent on agriculture in 1901 was only 52 per cent. of the total. The very low figure is explained by the fact that a large number of field-labourers were treated for enumeration purposes as coolies, and entered in the census returns under a non-agricultural head.

There were 346 native Christians in 1901, the majority of whom were Roman Catholics. The Roman Catholic Mission has three village

churches, served by local priests, in the Singaing township. At Chanthagon are maintained a hospital and a boarding-school for Burmese orphans. The English Wesleyan Methodists manage an Anglo-vernacular school at Kyaukse town, where there is a missionary.

Agriculture.

The main feature of Kyaukse from an agricultural point of view is its system of irrigation, which has been in existence, in a more or less modified form, for many years. Both the plain and the hills on the eastern border, from which vast quantities of detritus are washed down annually, appear to contain elements extraordinarily favourable for rice cultivation; and a judicious use of the streams that water the country has converted portions of it into vast fertile stretches, which it is hard to recognize as forming a part of the dry zone of Upper Burma, and which, according to tradition, have never been fallow for centuries. The most important agricultural area is the extensive irrigated tract lying, for the most part, in the long wedge of land between the Zawgyi and Samon rivers, where the soil is watered chiefly by means of small distributaries, bringing the water to the fields from the main canals. The land, enriched with the silt brought down by the early rains, is thoroughly ploughed, generally by bullocks, but in the wetter tracts by the more powerful buffalo, and harrowed as early in the season as practicable. In a few of the best-irrigated lands *kaukyin* rice, sown broadcast in April and reaped in August, is followed immediately by *kaukkyi* rice, which has been sown in the nurseries in June and July and is transplanted late in August or in September, to be reaped in December and January. This rapid succession of crops naturally throws a considerable strain on the soil, and it is calculated that the out-turn of the second crop is reduced 33 per cent. by having to follow closely on the first. The earlier *kaukyin* rice is often sown in nurseries in March, transplanted in May, and reaped in August. *Mayin* rice is planted in December when water is available, and reaped between March and June. *Kaukkyi* rice does not as a rule do well after *mayin*, but in a few cases three crops a year have been gathered on one holding. Manuring, which is common, increases the out-turn by about 12 to 15 per cent. The place of the *kaukyin* rice, as a first crop, is often taken by early sesamum (*hnanyin*). When the irrigation is deficient or untimely, plantains are grown for two or three years, and then rice for two years. In the non-irrigated tracts, which lie for the most part to the west of the Samon river, cultivation depends directly on the timeliness of the rainfall, and here the harrow is used only when the rains have set in. On these lands *mogaung* (rain-irrigated) rice is grown as well as various 'dry crops.' In the hill tracts *taungya* (shifting) cultivation prevails. Before the monsoon breaks, the jungle on the hill slopes in the *taungya* areas is cleared and burnt, and when the rains set in the seed is

inserted in small holes made with pointed bamboos. The harvest is reaped at the end of the rains, and when the soil is exhausted the *taungya*-cutter flits to a new clearing.

The following table shows the main agricultural statistics of the District for 1903-4, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Singaing . .	825	67	47	625
Kyaukse . .	172	105	82	
Myittha . . .	277	104	75	
Total	1,274	276	204	625

Of the area cultivated in 1903-4, the greater part, 187 square miles, was under rice, while early and late sesamum in nearly equal proportions covered 38 square miles. In the non-irrigated land in the south-west of the District, chillies are the standard crop, small portions of the holdings being devoted to late sesamum and tomatoes. The area under chillies amounts to 8,000 acres. Pulse has an acreage about the same as that of chillies, and orchards, covering 8,600 acres, are planted to a large extent on the richer irrigated lands. Of the total orchard area, 7,000 acres consist of plantains, which are very numerous on the banks of the Zawgyi. Mango groves are plentiful along the course of the Myitnge river, and toddy-palms are common on the Samon. Wheat is increasing in popularity, and the area under this crop in 1903-4 (4,200 acres) exceeded that of Mandalay, and was smaller only than that of Sagaing. The greater part of the District is state land, the cultivators being the tenants of Government; but there is a large amount of hereditary freehold known as *bobabaing*, i.e. ancestral or non-state land. Certain lands are held for life by members of the late Burmese royal family on special conditions. In some cases they enjoy exemption from both revenue and water rate; in others revenue is not levied, but the land is subject to water rate, and on others again reduced revenue rates are assessed. The total area of these special life-term grants is, however, only 866 acres.

The cultivated area has increased by more than 40 per cent. since 1893-4, the first year of supplementary survey. From time to time new varieties of seed have been tried locally, among others Havana tobacco, but so far little success has attended the experiments made. Large sums of money are advanced every year under the Agriculturists' Loans Act to cultivators, to assist them in purchasing plough-cattle and seed-grain. These loans are eagerly sought after, and are undoubtedly an important factor in the increase of cultivation. They are usually made repayable in two years by instalments, and

little or no difficulty is experienced in recovering them. During the four years ending 1904 they averaged over Rs. 30,000 per annum.

The Kyaukse buffaloes are inferior to the beasts ordinarily used in Lower Burma, but the bullocks are well-bred, handsome animals. Ponies are fairly numerous, but are mostly undersized. There are a few flocks of sheep and numerous herds of goats belonging to natives of India, while in most villages hogs are kept by the Burmans.

Kyaukse is remarkable for its complete system of irrigation, which dates, if local tradition is to be believed, from the days of king Anawrata of Pagan. Several of the works have since been remodelled, weirs have been rebuilt, and proper regulators and sluices have been introduced; but the credit for the initial scheme rests with the country's early rulers. The canals and their tributaries serve an area of nearly 400 square miles, covering the whole plain between the hills in the east and the Samon river in the west. The Panlaung, immediately after entering the District at its south-eastern corner, is crossed by the Kinda weir, from which starts a system of canals about 33 miles in length with 33 miles of distributaries, irrigating that part of the Myittha subdivision which lies to the right of the Panlaung, and commanding 78 square miles. So much of the Myittha subdivision as stretches between the Panlaung and the Samon is watered by canals starting from the Natlwe and Kyime weirs, lower down the Panlaung. The first system consists of one canal, 14 miles long, with a westerly course, which commands 23 square miles. The second includes one short water-cut and the Sama canal, which runs for 25 miles along the narrow strip of land between the Samon and the Panlaung, both together commanding 41 square miles. The Zawgyi soon after entering the Kyaukse subdivision is crossed by the Nwadet weir, whence the Nwadet canal starts from its left bank and follows the river to near Kyaukse. It is 27 miles long, has 45 miles of branches and distributaries, and commands 53 square miles. Below the Nwadet are two weirs where smaller channels branch off northwards from the right bank, at Ngapyaung and Thindwe. From the Minye weir at Kyaukse the Minye canal runs northwards past Bilin and the Tamok canal north-west towards the Panlaung, commanding between them 39 square miles. From the Zidaw regulator the Zidaw canal, 20 miles in length, zigzags across the line of the railway. With its Myaungzon branch, running north-west for 15 miles from the Sedo weir near Bilin, and 28 miles of distributaries, it serves in all 64 square miles. The Zawgyi thus irrigates the whole of the Kyaukse subdivision between the hills and the Panlaung. In 1903-4 these canals supplied 204 square miles, about two-thirds from the Zawgyi system and one-third from the Panlaung. Each system is controlled by an Assistant Engineer under the Executive Engineer in charge of the Eastern Irrigation division,

whose head-quarters are at Kyaukse. The gross expenditure on the canals in 1903–4 was 3 lakhs, Rs. 49,000 being spent on establishment, Rs. 76,000 on repairs, and 1·6 lakhs on works. The tract west of the Samon is irrigated to a limited extent by tanks, and, in the case of the fields at the foot of the hills, by small streams.

There are two 'reserved' forests, the Yeyaman and the Pyetkaywetaung. The area of the Yeyaman Reserve is 306 square miles, about one-third of which is teak-bearing. The teak is found chiefly towards the sources of the streams, the tract in the immediate vicinity of the river being covered with dry scrub growth, gradually merging into dry hill forest, in which *thitya* (*Shorea obtusa*), *ingyin* (*Pentacme siamensis*), and *padauk* (*Pterocarpus indicus*) are characteristic species. Along the crest of the higher ridges are found the Khasya pine, the *thitya*, *thitsī* (*Melanorrhoea usitata*), and other species. The Pyetkaywetaung Reserve, which is on the southern border of the District, east of the railway, has an area of 38 square miles. Before this forest was reserved, the western portion was being denuded of forest growth by fuel-cutters. The chief trees are *than* (*Terminalia Oliveri*), *ingyin*, *thitya*, teak, and *pyingado* (*Xylia dolabriformis*), while the south-western portion contains various bamboos and a few *padauk* trees. In addition to these two Reserves, there are 281 miles of unclassed forest. A good deal of timber is floated through, but practically all of it comes from forests in Meiktila and Yamethin. Cutch is found chiefly near Sunye, Shangan, Zeywa, and Pyaukseikpin. The forest receipts in 1903–4 amounted to only Rs. 3,200.

Sandstone for the use of the Irrigation department and the railway is quarried in the hills close to Kyaukse and Bilin, the output in 1900 amounting to about 13,000 tons, valued at Rs. 48,000. Limestone is extracted from the hills east of the railway, and burnt in kilns near the villages in the neighbourhood. The lime is largely for export, but it is also used locally for the construction of masonry irrigation works and for white-washing pagodas, &c. A royalty of Rs. 10 per kiln is levied by Government. Brick and pottery clays are found in the District, also chalk in small quantities; and soap-sand, mica, and marble exist in the hills to the east of the railway, but have not yet been worked.

Trade and communications.

The majority of the population being dependent on agriculture and petty trading, there are no manufactures of any importance. Cotton garments for daily wear are woven on hand-looms everywhere, and in a few villages silk *pasos* and *longyis* are made for sale, but even in these villages the people depend mainly on agriculture for their livelihood. Two small rice-mills have lately been built at Myittha, but they receive little patronage and employ very few workmen.

A considerable trade passes between the District and the Southern

Shan States, the greater part of which follows the Myittha route via the Natteik pass, or an easier and longer track by way of Dahatbin. The merchandise is carried on pack-bullocks or ponies, which are owned and driven by Shans. This trade, with that going to Kume from the Natteik pass, is registered at Langwa, 4 miles from Myittha. In 1903-4 the imports by the Langwa route were valued at 9·4 lakhs. Of this total, no less than 5 lakhs represented the value of silver treasure required to make up the balance of trade, which is very much against the Shan States. Unmanufactured articles are the chief imports, the most notable being cigar wrappers (*thanatpet*), and fruit and vegetables (valued at Rs. 50,000 in 1903-4). Other commodities brought in are apparel, Shan slippers, wood-oil (*thitsī*), paper, and ground-nuts. The exports to the Shan States were valued in the same year at 6½ lakhs, the chief articles being manufactured silk piece-goods (1½ lakhs), European cotton piece-goods (1·3 lakhs), salted fish, salt, European cotton twist and yarn, raw silk, woollen piece-goods, and betel-nuts.

Another and more northerly trade route to the Shan States runs via Taungdaw eastwards to Myogyi in the Maw State. The trade by this route, which is registered at Taungdaw, is not very considerable, but shows signs of expansion. In 1900-1 the imports were valued at Rs. 34,000, and the exports at Rs. 33,000, while in 1903-4 the corresponding figures were 2·2 lakhs and 2·1 lakhs. The chief imports are fruit and vegetables and lac, and the chief exports rice, paddy, and piece-goods. Merchandise by this route is usually carried in carts, though pack-bullocks are sometimes employed. The imported goods are taken to the railway station at Minzu, and thence by rail to Rangoon or Mandalay.

Besides the trans-frontier commerce with the Shan States, there is a considerable trade with the neighbouring Districts and within the District itself. Large quantities of paddy are exported by rail from the Kyaukse, Myittha, and Kume Road stations, and smaller quantities also from Minzu. Chillies are sent from all the stations in the District, plantains from Minzu, lime from Minzu, Kyaukse, and Bilin, and pulse from Myittha; but three-fourths of the bulky exports reach the railway at Kume Road. The internal trade is of a petty nature, carried on for the most part by itinerant sellers. Bazars have been built in most of the more important villages for their benefit.

The railway from Rangoon to Mandalay passes north and south through the centre of the District, with eight stations in its limits, all of them connected by feeder roads with the surrounding country. The principal highways are the road from Kyaukse southwards to Kume Road station and thence into Meiktila District; that from Myittha to Ingon, used by trading caravans to and from the Shan States via the Natteik pass; and that from Minzu to Taungdaw, employed by the

Shan caravans that follow the Taungdaw route. Roads from Minzu to Dayegaung connect the villages to the west of Minzu with the railway, while others pass from Kyaukse to Dwehla, and on into Sagaing District, and from Singaing eastwards to Mogaung and westwards to Sawye. All these, with a few other tracks of less importance, are maintained from Provincial funds, their total length being 97 miles. The District fund maintains 79 miles of road, the most important tracks being from Kyaukse to Bilin, from Myittha to Dayegaung, and from Kasun to Hmaingmaw. The District contains no metalled roads, except in the towns of Kyaukse and Myittha. During the dry season carts can make their way over the greater part of the plain, but while the rains last many of the tracks are impassable. A good deal of boat traffic is carried on the Myitnge and Panlaung rivers, as well as on a few of the irrigation canals. Ferries are provided wherever required for the public convenience, and the canals are all bridged at suitable intervals.

Administration.

The District is divided into two subdivisions: Kyaukse, comprising the KYAUKSE and SINGAING townships; and the subdivision and township of MYITTHA. These are under the usual executive officers. The Yeyaman tract is in charge of a *myothugyi*, who is subordinate to the subdivisional officer, Kyaukse. Under these officials are 326 village headmen, the Yeyaman *myothugyi* having ten villages under him. At head-quarters are an *akunwun*, a treasury officer, and a superintendent of land records, with a staff of 6 inspectors and 45 surveyors. For ordinary public works purposes the District forms a subdivision of the Meiktila Public Works division, conterminous with the civil Division. As stated above, the canals are under an Executive Engineer at Kyaukse. The forests form part of the Mandalay Forest division.

The jurisdiction of the civil and criminal courts is identical with the administrative divisions already described, and the Deputy-Commissioner and the subdivisional and township officers have the usual civil and criminal powers. There are two other judicial officers: namely, the head-quarters magistrate, who is also an additional judge of the Kyaukse township court; and the *myothugyi* in charge of the Yeyaman tract, who has third-class magisterial powers. Crime in the District is light, and the civil work is not heavy, though it is steadily increasing.

Under Burmese rule the land revenue was always paid in paddy, which the cultivators had to cart themselves to certain specified landing-places, where it was loaded in boats for conveyance to Mandalay. The contributions levied were very heavy, and were rendered still heavier by the dishonesty and malpractices of the receiving officers. To arrive at the demand a rough survey was made by running a rope

round each holding, the area being calculated by squaring half the circumference thus obtained. No effective check was made of the surveyors' work, and they were at liberty to estimate the area as they pleased. From the estimated area the demand was from 6 to 20 baskets of paddy per *pe* (1·75 acres) on irrigated crops, 3 to 6 baskets per *pe* on 'dry' *ya* (upland) crops, 10 baskets from the second year's plantain crop, 40 baskets from the third year's, and 30 baskets from sugar-cane. There were fourteen revenue circles, each under a *segyi*, who collected the paddy revenue in his own canal tract with the assistance of village headmen and *myothugyis*. The revenue so collected amounted in average years to 758,000 baskets. In 1246 B.E. (A.D. 1884) king Thībaw farmed out the District for a stipulated sum to an official, who in turn sublet tracts to various contractors. Matters were found at this stage at the time of annexation. In 1888 temporary rates of assessment were sanctioned, as the District was almost depopulated, and had hardly begun to recover from the disturbances following annexation. They were considerably lower than those imposed by the Burmese, and the consequence was that a sudden and pronounced increase took place in the area brought under cultivation. The next year a cadastral survey and settlement were taken in hand, and rates were sanctioned in 1893. All rice lands were divided into five classes, based on the relative facilities of irrigation, and the land rates were fixed at Rs. 6, 5, 4, 3, and 2 per acre. For other crops the following special rates per acre were fixed: betel-vines, Rs. 20; sugar-cane and areca palms, Rs. 12; plantains (full grown) and Goa beans, Rs. 8; orchards, tobacco, onions, chillies, turmeric, yams, tomatoes, gram, and wheat, Rs. 3; and sesamum, plantains (young), and all other crops, Rs. 1–8 per acre. This settlement was sanctioned provisionally for five years, subject to such revision as might be found necessary from time to time, and its rates are still in force. Supplementary survey followed immediately on settlement, and in time accurate agricultural statistics became available. A revision survey and settlement was commenced in 1902, and has recently been completed. Revenue is assessed only on crops which have matured; and where two crops of rice are taken off any field in one year, the revenue on that field for the second crop is assessed at one-half the full rate. On unirrigated non-state lands the rates of assessment are three-fourths, and on irrigated non-state lands seven-eighths, of the state land rates given above. The rates for irrigated lands include water rate.

The table on the next page illustrates the growth of the revenue of the District since 1890–1. The figures are given in thousands of rupees.

After land revenue, *thathameda* is the most important item of receipt. It brought in rather more than a lakh and a half in 1903–4.

	1890-1.	1900-1.	1903-4.
Land revenue . .	3,72	6,49	6,95
Total revenue . .	6,45	8,26	9,00

The income of the District fund, utilized for the provision of various local needs, amounted in 1903-4 to Rs. 48,300, of which more than Rs. 40,000 was spent on public works. The only municipality in the District is KYAUKSE.

The District Superintendent of police has a force of 3 inspectors, one chief head constable, 7 head constables, 16 sergeants, and 247 constables, who are distributed in 9 police stations and 2 outposts. The place of the rural police is taken by the village headmen, who have certain powers under the Village Regulation and Excise and Opium Acts, and who may be said as a rule to afford the police loyal support in the detection and suppression of crime and the maintenance of order. There are two detachments of the Mandalay military police battalion in the District, one of 50 men under a *sūbahdār* at Kyaukse and the other of 30 men under a *jemadār* at Myittha, who are employed on general escort and guard duty. Kyaukse has no jail, and short-term prisoners are kept in the lock-up, while others are sent to the Mandalay jail to serve out their sentences.

When the absence of backward hill tribes and the comparatively small number of Indian immigrants are borne in mind, the proportion of literate persons in 1901 (35 per cent. in the case of males, 2·3 per cent. in that of females, and 18 per cent. for both sexes together) appears low, though missionary enterprise has done a good deal towards furthering education. In 1904 the District contained 5 secondary, 97 primary, and 504 elementary (private) schools. These institutions had in the same year an attendance of 6,212 pupils (including 927 girls), as compared with 3,062 in 1890-1 and 3,981 in 1900-1. The expenditure on education was Rs. 7,900, Provincial funds providing Rs. 5,700, and fees and subscriptions Rs. 2,200.

There are two hospitals, with accommodation for 56 in-patients, in which 14,431 cases, including 579 in-patients, were treated in 1903, and 260 operations were performed. The income of these hospitals amounted to Rs. 8,900, towards which municipal funds contributed Rs. 4,200, Provincial funds Rs. 3,800, and subscriptions Rs. 600.

In 1903-4 the number of persons successfully vaccinated was 4,332, representing 31 per 1,000 of population. Vaccination is compulsory only within the limits of the Kyaukse municipality.

[S. Westlake, *Settlement Report* (1892).]

Kyaukse Subdivision.—Subdivision of Kyaukse District, Upper Burma, comprising the SINGAING and KYAUKSE townships.

Kyaukse Township.—Central township of Kyaukse District, Upper Burma, lying between 21° 25′ and 21° 41′ N. and 96° 2′ and 96° 21′ E., with an area of 172 square miles. The population was 45,733 in 1891, and 44,378 in 1901, so that it is one of the most thickly populated townships in the Province. It contains one town, KYAUKSE (population, 5,420), the head-quarters of the District and township; and 231 villages. The township is an extensive plain, walled in by the Shan plateau on the east, and is well irrigated by canals taking off from the Zawgyi river. In 1903–4 the area cultivated was 105 square miles, of which 82 square miles were irrigated, and the land revenue and *thathameda* amounted to Rs. 3,34,000.

Kyaukse Town.—Head-quarters of Kyaukse District, Upper Burma, situated in 21° 37′ N. and 96° 9′ E., on the right bank of the Zawgyi river, near the centre of the District, 27 miles by rail from Mandalay and 359 from Rangoon. Population (1901), 5,420. It takes its name from the stone weir which here bestrides the Zawgyi at a point close to where its channel is crossed by the railway line. It lies at the foot of the Shwethayaung hill, an isolated limestone mass, rising from the plain to a height of 975 feet, and is well laid out, the civil station lying to the west, and the business quarter to the east of the railway line. The hill is crowned with a shrine which dates from the reign of king Anawrata, and at its foot is the Shwemoktho pagoda, said to have been built by Asoka and repaired by Anawrata. The town has no industries of importance, and the inhabitants are to a large extent petty traders. The town was constituted a municipality in 1888. The income and expenditure during the decade ending 1901 averaged about Rs. 19,000. In 1903–4 the income amounted to Rs. 21,000, the main sources being bazar rents (Rs. 11,000) and house and land tax (Rs. 4,500). The expenditure was Rs. 22,000, the chief items being conservancy (Rs. 6,000), and hospital, which contains 40 beds (Rs. 4,600).

Kyauktan Subdivision.—Subdivision of Hanthawaddy District, Lower Burma, comprising the KYAUKTAN, THONGWA, and THABYEGAN townships.

Kyauktan Township.—Township in Hanthawaddy District, Lower Burma, lying between 16° 30′ and 16° 48′ N. and 96° 11′ and 96° 37′ E., along the lower reaches of the Rangoon river and the Gulf of Martaban, with an area of 403 square miles. Except for one low laterite ridge, it is absolutely flat. The head-quarters are at the village of Kyauktan (population, 2,653), pleasantly situated on the right bank of the Hmawwun stream, 5 miles from its junction with the Rangoon river. Syriam (population, 1,961), historically the most interesting town in the District, lies in the west of the township. The township, as at present constituted, had a population of 52,065 in 1901, and contained

173 villages. A portion of the former area has been incorporated in the new township of Thongwa. The area cultivated in 1903–4 was 237 square miles, paying Rs. 4,59,000 land revenue.

Kyauktaw Subdivision.—Subdivision of Akyab District, Lower Burma, consisting of the KYAUKTAW and MYOHAUNG townships.

Kyauktaw Township.—Northern township of Akyab District, Lower Burma, lying between 20° 35′ and 21° 13′ N. and 92° 50′ and 93° 16′ E., and bordering on the District of Northern Arakan, with an area of 370 square miles. The population was 45,186 in 1891, and 53,303 in 1901. There are 312 villages. The township is for the most part level, and is traversed from north to south by the Kaladan river, on the banks of which Kyauktaw, the head-quarters (population, 2,303), stands. The area cultivated in 1903–4 was 116 square miles, paying Rs. 1,40,000 land revenue.

Kyaunggon.—Southern township of the Ngathainggyaung subdivision of Bassein District, Lower Burma, lying between 16° 54′ and 17° 13′ N. and 94° 58′ and 95° 20′ E., with an area of 370 square miles. The township is low-lying and fertile, and cut up by tidal creeks. It contains 562 villages, and the population was 51,931 in 1891, and 66,951 in 1901. The head-quarters are at Kyaunggon (population, 1,717), on the Dagā river, 40 miles north-east of Bassein town. The area cultivated in 1903–4 was 120 square miles, paying Rs. 3,38,000 land revenue.

Kyawkku (Burmese, *Kyaukku*).—Small State in the Myelat division of the Southern Shan States, Burma, lying between 20° 51′ and 21° 2′ N. and 96° 29′ and 96° 40′ E., with an area of 94 square miles. It is bounded on the north and west by Yengan, on the east by Pangtara, and on the south by Kyong. The State is very hilly, especially towards the east, and the Panlaung river rises within its borders. Rice is the staple crop, and the total cultivated area is about 1,000 acres. The population in 1901 was 4,771 (distributed in 33 villages), of whom nearly 3,000 were Danus, about 1,400 Taungthus, and the rest Shans and Palaungs. The residence of the Ngwegunhmu is at Myinkyado (population, 354). The revenue in 1904–5 amounted to Rs. 3,900 (mainly from *thathameda*), and the tribute to the British Government is Rs. 2,000.

Kyebogyi.—One of the KARENNI States, Burma.

Kyelang (*Kailang*).—Chief village in the Lāhul canton of the Kulū subdivision of Kāngra District, Punjab, situated in 32° 35′ N. and 77° 4′ E., on the right bank of the river Bhāga, about 4 miles above its junction with the Chandra, and on the main trade route between the Rohtang and Bārā Lācha passes. Population (1901), 388. A post office is maintained here during the summer months, and the village has for many years been a station of the Moravian

Mission, which maintains a school and a dispensary. It also contains the court-house of the Thākur of Lāhul, and an observatory 10,087 feet above sea-level.

Kymore.—Hill range in Central India. *See* KAIMUR.

Kynchiang.—River in Khāsi and Jaintiā Hills District, Eastern Bengal and Assam. *See* JADUKATA.

Kyong (Burmese, *Kyon*).—Small State in the Myelat division of the Southern Shan States, Burma, lying in 20° 47′ N. and 96° 39′ E., with an area of 24 square miles. It is bounded on the north by Kyawkku and Poila, on the east and west by Poila, and on the south by Hsamönghkam. It consists entirely of grassy downs, and is very dry. The population in 1901 was 2,340 (distributed in 20 villages), of whom about 1,000 were Taungthus, and the remainder Shans, Taungyos, and Danus. The residence of the Ngwegunhmu is at Kyong (population, 292), in the centre of the State. The revenue in 1904–5 amounted to Rs. 2,500 (mainly from *thathameda*), and the tribute to the British Government is Rs. 1,350.

Kyonpyaw.—North-eastern township of the Ngathainggyaung subdivision of Bassein District, Lower Burma, a level stretch of country intersected by tidal creeks, lying between 17° 8′ and 17° 30′ N. and 95° 9′ and 95° 28′ E., with an area of 292 square miles. It contains 466 villages, and the population was 50,002 in 1891, and 70,010 in 1901. It is the most thickly populated township in the District, and its rate of increase during the decade has been far more rapid than that of any other portion. Kyonpyaw (population, 5,358), on the right bank of the Dagā river, near the western border of the township, is the head-quarters. In 1903–4 the area under cultivation was 171 square miles (an increase of 45 per cent. in ten years), paying a land revenue of Rs. 2,29,000. The Inye Lake in this township is an important fishery, the lease of which fetches about Rs. 28,000 annually.

Kyunhla. — North-western township of Shwebo District, Upper Burma, extending from the Mu river to the Upper Chindwin District, between 23° 15′ and 23° 52′ N. and 94° 56′ and 95° 33′ E., with an area of 955 square miles. The country is hilly; and the population, which is very sparse, was 6,246 in 1891, and 8,560 in 1901, distributed in 84 villages, the largest of which, Kyunhla (population, 360), close to the west bank of the Mu, is the head-quarters. The area cultivated in 1903–4 was 98 square miles, and the land revenue and *thathameda* amounted to Rs. 25,600.

Labdarya.—*Tāluka* of Lārkāna District, Sind, Bombay, lying between 27° 6′ and 27° 30′ N. and 67° 59′ and 68° 24′ E., with an area of 356 square miles. The population in 1901 was 68,872, compared with 62,659 in 1891. The *tāluka* contains 57 villages,

of which Dokri is the head-quarters. The density, 194 persons per square mile, largely exceeds the District average. The land revenue and cesses in 1903-4 amounted to 2·4 lakhs. The soil, though lacking facilities for irrigation, is more fertile than elsewhere. Rice is the chief crop, the water supply being obtained from the Western Nāra canal; but wheat of excellent quality and gram are grown on the lands annually flooded by the Indus. Mango groves and gardens are more numerous here than in the rest of the District.

Lābpur.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 49′ N. and 87° 49′ E., on the Sūri-Kātwa road, 7 miles east of Ahmadpur station on the East Indian Railway. Population (1901), 750. It contains a temple of the goddess Phullarā, where there is a curious practice of feeding jackals. Lābpur is a *pithasthān* or sacred place, where the lips of the goddess Satī are said to have fallen.

Laccadive Islands (*Laksha dīvi*, 'the hundred thousand isles').—A group of coral atolls lying off the Malabar coast in the Madras Presidency, between 8° and 14° N. and 71° 40′ and 74° E. The nearest, Androth, is about 140 miles from the mainland. The five northern islands, specifically known as the AMINDĪVI ISLANDS, are attached to the District of South Kanara. The remainder, sometimes called the Cannanore Islands, belong to Malabar District. They comprise Androth (population in 1891, 2,999; and in 1901, 2,441), Kavaratti (2,021 and 1,959), Agatti (1,183 and 1,215), Kalpeni (1,236 and 1,562), and MINICOY (3,198 and 3,097), all of which are between 1 and 2 square miles in area, and also Suheli and Pitti, which are uninhabited. There are eight other smaller dependent islets. Minicoy lies 100 miles south of the others and belongs ethnically and geographically to the Maldives, though politically it is attached to the Laccadive group.

The conformation of all the islands is almost identical. They are crescent-shaped banks, not more than 10 or 15 feet above sea-level, lying along the eastern arc of an oval coral reef which stretches from north to south for 1 to 6 miles in length by under a mile in breadth. The western arc of the reef is a line of coral rocks, visible only at low water, with one or more outlets to the open sea. Inside the reef is a shallow lagoon, large enough to act as a harbour for the native craft, and so sheltered by the reef that even in the worst weather coco-nut fibre can be soaked in it without danger of being washed away. Outside is a gradually sloping bank of dead coral, which varies from 100 yards to three-quarters of a mile in width, and ends abruptly in a precipice, at which soundings drop suddenly from 20 fathoms to over 200. It seems probable that these atolls have been formed on the summits of a mountain range, that they first rose to the surface in

the form of shallow oval basins, and that under the protection of the reef the eastern rim gradually developed towards the centre, forming the island. This process of development towards the centre of the lagoon is still going on in some of the islands; while in Androth it is practically finished and no lagoon is left.

The superficial geological structure of the islands is as follows:—

'Beneath a thin layer of vegetable humus there is fine coral-sand; a few feet below this comes a compact crust of fine conglomerate that looks like coarse oolitic limestone with embedded bits of shell; beneath the crust of coral-stone, which—as it is easy to cut and becomes hard when exposed to the air—makes a good building stone, there is another layer of fine sand, and then at a depth of about 6 feet from the surface the ground water is tapped.'

Wells and pits for soaking coir are thus easily made, and are plentiful on all the islands. The water in them is good, though slightly brackish. It rises and falls with the tide. The surface soil of coral-sand or loose coral-stones is naturally so barren that there is little spontaneous vegetation in most of the islands; but the conditions are especially favourable to the growth of the coco-nut palm, which is the staple product of all of them. Both the tree and the nut are smaller than those of the mainland, but the tree bears much more quickly, in some cases within two years. In most of the islands the coral sub-stratum has been quarried out in patches and the damp subsoil of sand laid bare for cultivation. These patches of arable land, which are known as *tottam* or garden, are used for raising *rāgi*, millet, plantains, yams, and other vegetables. No rice is grown, and the islands are entirely dependent for it on the mainland. Limes and jack-trees flourish on all the islands, and a few areca palms on the more fertile. An attempt to grow casuarina for firewood was made in 1893, but it was a failure. Androth, which is the most fertile of the islands, contains about 100 acres of *tottam*, while Minicoy is practically monopolized by the coco-nut. The annual rainfall averages 50 inches.

There are cattle and goats on all the inhabited islands, though very few in Minicoy, and many fowls and cats. Rats (*Mus rufescens*) abound and do much damage to the coco-nut trees. The Government has tried various remedies, such as the importation of snakes, mongooses, and owls, to get rid of the pest, but with little effect; and the numbers are only kept down by the native institution of the koot (*kūttam*), or periodical rat-hunt, in which the whole male population is forced to join. Turtles and the sea-slug (*Holothuria*), originally a valuable article of commerce, are plentiful; corals and shells of all kinds, from the cowrie to the king conch, are found; the lagoons are full of fish of every kind and colour; while in the open water

sharks, porpoises, and *mas* or bonito (*Thynnus pelamys*) occur. There are no land-birds on the islands except tits, golden plovers, and a few specimens of the ubiquitous crow. The heron, peregrine, and kestrel are occasional visitors. Of sea-birds the commonest are turnstones, sand-pipers, and many varieties of tern, but no gulls. Insects are few, but the mosquito abounds in Minicoy, and most of the inhabitants use mosquito curtains.

Tradition assigns the first settlement of the islands to a shipwrecked party of Malayālis who were on their way to bring back king Cheramān Perumāl from Mecca in the ninth century; and the similarity of the language and customs of the islands to those of the coast leave no doubt that, with the exception of Minicoy, they were originally colonized by Hindus from Malabar. These are said to have been converted to Islām in the thirteenth century. The colonists acknowledged the supremacy of the Kolattiri Rājā, with whose dominions they carried on most of their trade; but their government was practically independent until the rise of the family of the Alī Rājā of CANNANORE, the chief admiral of the Kolattiri Rājā, to whom the islands were given by the latter in the sixteenth century as an estate. The Alī Rājās continued to rule over them till 1791, when they fell to the British with the conquest of Cannanore. After long discussion, a settlement was made with the Bībī of Cannanore in 1796, by which she agreed to pay an annual *peshkash* for the Laccadives and her property at Cannanore, retaining the administration of the former; and this settlement continues in force to the present day, though the islands are now administered by the British Government, having been sequestered for arrears of revenue in 1875.

The people are all Muhammadans. In habits and customs they resemble the Māppillas of North Malabar, except that the women hold a more important position, and are not veiled or secluded. They follow the Marumakkattāyam system of inheritance (i. e. succession in the female line). Their language is Malayālam, but in writing it they use the Arabic characters. They are divided into three main castes: Karnavans or Koyas, the aristocracy, who claim descent from Nambūdris and Nāyars, and originally monopolized land- and boat-owning; Mālumis or Urukkārs, the sailor caste, who sailed the Karnavans' boats, and were allowed small holdings of land on various conditions of service on their lords' lands and in their boats; and Melacheris or climbers, the serfs, whose duty was to pick coco-nuts, till their lords' lands, row the boats, and so forth. In Minicoy both the people and their customs differ from those of the other islands.

The population of the islands has remained fairly stationary. In 1845 it was estimated at 7,700 for the four northern islands, and in 1901 it was 7,180; but individual islands have experienced great

fluctuations. In the great cyclone of 1847, 300 were killed on Androth and 500 on Kalpeni, while in 1894 nearly 1,000 persons are said to have died from cholera on Androth. Education makes slow progress. Out of 10,274 persons, only 461 were returned as literate in 1901; of these 51 were females. The chief industries are the preparation and exportation of coir fibre, the manufacture being done by the women, and fishing. Besides coir, quantities of coco-nuts, copra (dried coconut kernels), tortoise-shell, and cowries are exported to the mainland in exchange for rice. The original organization of society was patriarchal. The Alī Rājā governed by means of agents (*kāryakārs*), who were assisted by heads of families. At present there is an Amīn on each island, who is appointed by the Collector of Malabar, and is responsible for all details of administration.

The revenue is derived from the Government monopoly of the trade in coir, cowries, tortoise-shell, and ambergris, of which the first is the most important. During the last twenty years the average outturn of coir fibre has been about 1,400 candies of 560 lb. Since the sequestration of the islands in 1875, the receipts have averaged Rs. 56,820, and the expenditure Rs. 47,460.

Lachhmangarh.—Head-quarters of a *tahsīl* of the same name in the State of Alwar, Rājputāna, situated in 27° 22′ N. and 76° 52′ E., 23 miles south-east of Alwar city, and 15 miles east of Mālākhera station on the Rājputāna-Mālwā Railway. The old name of the place was Taur. The village possesses a post office, a vernacular school, and a hospital with accommodation for 4 in-patients. In 1901 it contained 2,660 inhabitants. The *tahsīl* is situated in the south-east of the State, and at the last Census consisted of 175 villages, with a total population of 61,727, of whom nearly 80 per cent. were Hindus and 19 per cent. Musālmans. It was formerly held by semi-independent Thākurs of Jaipur, but was seized about 1776 by Pratāp Singh, the first chief of Alwar.

Lachhmangarh.—Town belonging to the Sīkar chiefship in the Shekhāwati *nizāmat* of the State of Jaipur, Rājputāna, situated in 27° 49′ N. and 75° 2′ E., about 80 miles north-west of Jaipur city. Population (1901), 10,176. The town is named after Rao Rājā Lachhman Singh of Sīkar, by whom it was founded in 1806. It is fortified and built after the model of Jaipur city, and possesses a combined post and telegraph office, 5 schools attended by 240 boys, and many handsome buildings occupied by wealthy bankers.

Ladākh.—The most westerly province of the high mountainous land spoken of as Tibet is called Ladākh or Ladāg. It is now politically a division of the Kashmīr State, lying between the Himālayas and the Kuenlun mountains, and between Baltistān and Chinese Tibet. The Karakoram range forms the northern boundary as far

east as the Karakoram pass. The country is known to educated Tibetans by other names—Mangyāl, Nearis, Māryul.

Physical aspects.

Ladākh is one of the most elevated regions of the earth, its sparse cultivation ranging from 9,000 to 14,000 feet. The scanty population is found in scattered and secluded valleys, where along the river banks and on alluvial plateaux crops are raised by irrigation. Central Ladākh, which lies in the Indus valley, is the most important division of the country. To the north is Nubra, consisting of the valley of the Nubra river and a portion of the valley of the Shyok. The great floods of the Indus, caused by the descent of glaciers across its stream and that of the Shyok, and the consequent damming back of the Nubra river have caused great destruction to riverain lands, once cultivated but now wastes of granitic sand. Here the fields are fenced to guard the crops from the ponies of traders on their way to Yārkand. The south is the Rupshu country with its great lakes. Rupshu Lake covers an area of 60 to 70 square miles. Tsomoriri is 15 miles in length, and lies at an elevation of 14,900 feet. The lakes are land-locked and brackish. East of Central Ladākh is the lake of Pangkong, and in its neighbourhood crops of beardless barley and peas are raised at an elevation of 14,000 feet. South-west is the country of Zāskār, with a very severe climate chilled by the lofty snow ranges.

The flora of Ladākh is scanty, and timber and fuel are the most pressing wants of the people. The *burtse* (*Eurotia*) is a low-growing bush which gives a fair fuel; and in the high valleys the *dama*, a kind of furze, is burnt. On some hill-sides the pencil cedar (*padam*) occurs, and in occasional ravines the wild willow is found. Arboriculture used to be discountenanced under the Gialpos, on the ground that trees deprived the land of fertility.

On the plains up to 17,000 feet wild asses or *kiang* (*Equus hemionus*), antelope (*Pantholops hodgsoni*), wild yak (*Bos grunniens*), ibex (*Capra sibirica*), and several kinds of wild sheep (*Ovis hodgsoni*, *O. vignei*, and *O. nahura*) are found; and the higher hill slopes up to 19,000 feet contain hares and marmots, the beautiful snow leopard (*Felis uncia*), and the lynx (*F. lynx*). Knight, in *Where Three Empires meet*, remarks:—

'Not only man, but also all creatures under his domination—horses, sheep, goats, fowls—are diminutive here, whereas the wild animals on the high mountains are of gigantic size.'

Drew counted as many as 300 *kiang* in a day's march. In outward appearance the *kiang* is like a mule, brown in colour with white under the belly, a dark stripe down the back, but no cross on the shoulder. One *kiang* shot by Drew was 54 inches in height. The flesh is rather like beef. They are common on the Changchenmo, and are met with

in many parts of Ladākh, where their curiosity often disconcerts sportsmen by alarming game worth shooting. A curious fact in the fauna of Ladākh is the absence of birds in the higher parts of the country. An occasional raven is the only bird to be seen.

The climate is very dry and healthy. Rainfall is extremely slight, but fine dry flaked snow is frequent, and sometimes the fall is heavy. There is a remarkable absence of thunder and lightning. The air is invigorating, and all travellers notice the extraordinary extremes of cold and heat. In Rupshu the thermometer falls as low as 9° in September. The minimum temperature of the month is 23·5°, and the mean temperature 43°. As Knight remarks:—

'So thin and devoid of moisture is the atmosphere that the variations of temperature are extreme, and rocks exposed to the sun's rays may be too hot to lay the hand upon, at the same time that it is freezing in the shade. To be suffering from heat on one side of one's body, while painfully cold on the other, is no uncommon sensation here.'

History.

The history of Ladākh, until its conquest by Rājā Gulāb Singh in the first half of the nineteenth century, is intimately connected with Tibet, with which country it still holds commercial and religious relations. Stories are told of invasions in the seventeenth century by the neighbouring Baltis, sometimes successful, sometimes repulsed. About the end of the seventeenth century the Ladākhis called in the aid of the governor of Kashmīr to repel the Sokpos, a Mughal tribe. Help was promptly given, and the Sokpos were driven out of Ladākh, after which it paid tribute to Kashmīr. Prior to annexation by the Dogrās, the government of the country was a mild form of monarchy. The ruler was called Gialpo or king, but the real power rested with the minister or Kahlon. The only check on the latter was the widespread authority of the monasteries. The chief of these is Himis Gompa, on the left bank of the Indus, 18 miles above Leh. This monastery, which contains 400 to 800 monks and nuns, stands at the head of a wild glen and covers a considerable space of ground. An important festival, called the Himis Tsheshū, is held annually on the tenth day of the fifth month (about June 7), when the whole country-side flock to the monastery and witness the weird devil-dance of the Buddhist Lāmas. A constant spectator is the Gialpo of Ladākh. The monastery is believed to contain great wealth, and the treasure is kept under guard in order to prevent its being carried over the border to Lhāsa. The chief shrine is faced entirely with silver plate. Its treasure-house has small vases filled with pearls, turquoises, and rubies, said to be of value.

Leh (population, 2,079) is the only place of importance in Ladākh,

and there are besides 463 villages. With the exception of one village of Shiah Musalmāns in Chhachkot, and of the Arguns or half-breeds, practically the whole population, excluding the town of Leh, is Buddhist. The people style themselves Bhots. According to the last Census, there are now 30,216 Buddhists living in Ladākh. They have the Mongolian cast of features, and are strong and well made, ugly, but cheerful and good-tempered. If they do quarrel over their barley beer (*chang*), no bad blood remains afterwards. They are very truthful and honest, and it is said that in court the accused or defendant will almost invariably admit his guilt or acknowledge the justice of the claim.

Population.

There are five main castes (*riks*): the Rgrial *riks*, or ryot caste; the Trangzey *riks*, or priestly caste; the Rjey *riks*, or high officials; the Hmang *riks*, or lower officials and agricultural classes; and the Tolbay *riks*, or artificers and musicians. This last caste, also known as Bem, is considered inferior.

The Ladākhis may be divided into the Champas or nomads, who follow pastoral pursuits on the upland valleys, too high for cultivation; and the Ladākhis proper, who have settled in the valley and the side valleys of the Indus, cultivating with great care every patch of cultivable ground. These two classes do not, as a rule, intermarry, and Champas rarely furnish recruits to the monasteries. The Ladākhis are mostly engaged in agriculture, and in spite of the smallness of their holdings they are fairly prosperous. Their great wants are fuel and timber. For fuel they use cow-dung and the bush known as *burtse*. Their only timber trees are the scattered and scanty willows and poplars which grow along the watercourses.

There can be little doubt that the modest prosperity of the Ladākhis, in contrast to the universal poverty of Baltistān, is due to the practice of polyandry, which acts as a check on population. Whereas the Baltis, used to the extremes of temperature, are able to seek employment in hot countries, the Ladākhis would die if they were long away from their peculiar climate. In a family where there were many brothers, the younger ones could neither marry nor go abroad for their living. When the eldest son marries, he takes possession of the little estate, making some provision for his parents and unmarried sisters. The eldest son has to support the two brothers next him in age, who share his wife. The children of the marriage regard all three husbands as father. If there be more than two younger brothers, they must go out as Lāmas to a monastery, or as coolies; or, if he be fortunate, a younger son can marry an heiress, and become a Magpa. (If there is no son in a family the daughter inherits, and can choose her own husband, and dismiss him at will with a small customary present. The Magpa husband is thus always on probation, as the

heiress can discard him without any excuse or ceremony of divorce.) When the eldest dies or becomes a Lāma, the next brother takes his place. But the wife, provided there are no children, can get rid of his brothers. She ties her finger by a thread to the finger of her deceased husband. The thread is broken, and she is divorced from the corpse and the surviving brothers. The woman in Ladākh has great liberty and power. She can, if she likes, add to the number of her husbands. Drew, who had a very intimate knowledge of Ladākh, thinks that polyandry has had a bad effect on the women, making them overbold and shameless. But others, who are equally entitled to form an opinion, consider this an unfair criticism.

In the town of Leh are many families of half-castes known as Arguns, the results of the union between Ladākhi women and Kashmīris, Turkī caravan-drivers, and Dogrās. The Dogrā children were known as Ghulāmzādas, and were bondmen to the State. The half-castes of Leh are no more unsatisfactory in Tibet than elsewhere, and many travellers have testified to the good qualities of the Argun.

The monasteries (*gompa*) play an important part in the life of the Ladākhis. Nearly every village has its monastery, generally built in a high place difficult of access. At the entrance are prayer cylinders, sometimes worked by water-power, and inside a courtyard is a lofty square chamber in which the images and instruments of worship are kept. No women may enter this chamber. Every large family sends one of its sons to the monastery as a Lāma. He goes young as a pupil, and finishes his studies at Lhāsa. In a monastery there are two head Lāmas: one attends to spiritual, the other to temporal matters. The latter is known as the *Chagzot* or *Nupa*. He looks after the revenue of the lands which have been granted to the monastery, carries on a trade of barter with the people, and supervises the alms given by the villagers. He also enters into money-lending and grain transactions with the surrounding villages. Many monasteries receive subsidies from Lhāsa. The Lāmas wear a woollen gown dyed either red or yellow. The red Lāmas predominate in Ladākh. The red sect known as Drukpas are not supposed to marry while in the priesthood. Nunneries are frequently found near the monasteries of both sects, but the *Chomos*, or nuns of the yellow sect, have a higher character than those of the red sisterhood. About a sixth of the population of Ladākh is absorbed in religious houses. The Lāmas are popular in the country, are hospitable to travellers, and are always ready to help the villagers.

There are two missions at Leh—the Moravian and the Roman Catholic. The Moravian Mission is an old and excellent institution, much appreciated by the people for its charity and devotion in

times of sickness. The mission has a little hospital, whither the Ladākhis, whose eyes suffer from the dustiness of the air and the confined life in the winter, flock in great numbers.

Agriculture.

The soil is sandy, and requires careful manuring, and nothing can be raised without irrigation. The chief crops are wheat, barley, beardless barley, peas, rapeseed, and beans in the spring; buckwheat, millets, and turnips in the autumn. Lucerne grass is grown for fodder. The surface soil is frequently renovated by top-dressings of earth brought from the hill-sides, and it is a common practice to sprinkle earth on the snow in order to expedite its disappearance. Fruit and wood are scarce, except in villages situated on the lower reaches of the Indus.

Beardless barley (*grim*) is the most useful crop, and can be grown at very high elevations (15,000 feet). In the middle of Ladākh the crop is secure if there be sufficient water; and in the lower villages the soil is cropped twice a year, as there is ample sunshine; but in Zāskār, which is near the high snowy range, the crops often fail for lack of sun-warmth. Ploughing is chiefly done by the hybrid of the yak bull and the common cow, known as *zo* (male) or *zomo* (female). This animal is also used for transport purposes. Grazing is limited, and consequently the number of live-stock is not large; but there are a fair number of ponies, those from Zāskār being famous. The food of the Ladākhis is the meal of *grim*, made into a broth and drunk warm, or else into a dough and eaten with butter-milk. The Ladākhis have no prejudices, and will eat anything they can get.

Borax is produced in Rupshu, and salt is found. About 1,436 maunds of borax are extracted annually, but the industry is profitable neither to the people nor to the State. In former days sulphur, saltpetre, and iron were manufactured in factories at Leh, but the scarcity of fuel has now rendered these industries impossible.

Practically the only manufacture is that of woollen cloth, known as *pattū* and *pashmīna*.

Trade and communications.

The people trade in agricultural products with the Champas of Tibet and with Skārdu. Salt is largely exported to Skārdu, and in a less degree to Kashmīr, being exchanged for grain, apricots, tobacco, madder, and ponies. The chief commerce is the Central Asian trade between Yārkand and India.

Administration.

Ladākh is in the charge of a Wazīr Wazārat, who is responsible for Baltistān and the three *tahsīls* of Ladākh, Kargil, and Skārdu. His duties are light. There is little crime and scarcely any litigation. The chief cases are disputes regarding trees, or complaints that one villager has stolen the surface soil of another. No police force is maintained, but a small garrison of State troops is quartered in the fort at Leh, a building with mud walls.

The Wazīr Wazārat and his establishment cost the State Rs. 9,166 per annum. One of the chief functions of the Wazīr is the supervision of the Central Asian trade which passes through Leh. For this purpose he is *ex-officio* Joint Commissioner, associated with a British officer appointed by the Indian Government. Each subdivision of Ladākh is in the charge of a *kārdār*, who is a Bhot. His chief duties are to see that all reasonable assistance is rendered to the Central Asian traders and travellers. For this purpose the villages of each *kārdāri* are made responsible for furnishing baggage animals and supplies in turn, and according to the capacity of each village to the stages situated within the limits of the *kārdāri*. This is known as the *reis* system. Primary schools are maintained at Skārdu and at Leh.

The land revenue system in the past has been of a very arbitrary description, the basis of assessment being the holding or the house. The size of the holding or the quality of the soil receives little consideration. Taken collectively, it has perhaps not been heavy, though the rates are considerably higher than those now applied in Baltistān; but its incidence has been unfair, oppressive to the poor, and very easy to the rich. A redistribution of the old assessments on a more equitable principle, and a summary revision where the assessments were obviously too high or unnecessarily light, have recently been carried out by a British official lent to the State. The greater part of the revenue is paid in cash, but some is taken in grain and wood, which are necessary for the supply of the Central Asian traders. The grain is stored at convenient places on the caravan route in the charge of officials who sell to the traders. But for this system trade would be hampered; for after leaving the Nubra valley and crossing the Karakoram range no fodder is available on the Yārkand road till Shāhidullah in Chinese territory is reached, and grain for feeding animals must be carried from Nubra. The strain of forced labour is heavy in Ladākh. Not only is unpaid transport taken for political missions, assistance to the trade route, &c., but several monasteries are allowed to impress unpaid labour for trading purposes.

Agricultural advances, chiefly seed-grain, are made for the most part not by the State, but by the monasteries, and the poorer classes are heavily in debt to the religious institutions. These are not harsh creditors. When the debtor is hopelessly involved, the monastery takes possession of half of his land for a period of three years. If the debt is not liquidated within three years, the land is restored to the debtor and the debt written off. The monastery will never sue a debtor, nor is land ever permanently alienated for debt.

Lādnun.—Head-quarters of the *jāgīr* estate of the same name in the Didwāna district of the State of Jodhpur, Rājputāna, situated in

27° 39′ N. and 74° 24′ E., about 130 miles north-east of Jodhpur city and within 4 miles of the Bīkaner border. Population (1901), 8,064. The place is the home of some of the wealthy Mārwāri merchants of Calcutta and other large cities, and is locally famous for the manufacture of gold ornaments. The estate of Lādnun consists of seven villages yielding a revenue of about Rs. 20,000, and is held by a Thākur belonging to the Jodha sept of Rāthor Rājputs.

Lādol.—Town in the Vijāpur *tāluka*, Kadi *prānt*, Baroda State, situated in 23° 37′ N. and 72° 44′ E. Population (1901), 6,641. It possesses a vernacular school, and has a fair trade in grain.

Lādwa.—Town in the Thānesar *tahsīl* of Karnāl District, Punjab, situated in 29° 59′ N. and 77° 3′ E. Population (1901), 3,518. The town and neighbourhood belonged to a Sikh family, and were confiscated in 1846 in consequence of their conduct in the first Sikh War. The place is of no commercial importance. The municipality was created in 1867. The income and expenditure during the ten years ending 1902–3 averaged Rs. 5,300. In 1903–4 the income was Rs. 4,500, chiefly derived from octroi; and the expenditure was Rs. 4,900. The town has a vernacular middle school and a dispensary.

Lāharpur.—Town in the District and *tahsīl* of Sītāpur, United Provinces, situated in 27° 42′ N. and 80° 55′ E., 17 miles north-east of Sītāpur town. Population (1901), 10,997. It is said to have been founded by Fīroz Shāh Tughlak in 1374, when on his way to the shrine of Saiyid Sālār at Bahraich. Some years afterwards, one Lahurī, a Pāsī, took possession of it, and changed its name to Lāharpur. The Pāsīs gave way in the fifteenth century to the Musalmāns, who were ousted about 1707 by the Gaur Rājputs. Lāharpur is famous as the birthplace of Rājā Todar Mal, Akbar's great finance minister and general. It is administered under Act XX of 1856, with an income of about Rs. 1,800. It contains a dispensary and two schools.

Laheriā Sarai.—Suburb of Darbhangā town, Darbhangā District, Bengal. *See* DARBHANGĀ TOWN.

Lahore Division.—Central Division of the Punjab, stretching roughly from the Chenāb to the Sutlej. It lies between 29° 58′ and 32° 51′ N. and 72° 27′ and 75° 56′ E. The Commissioner's headquarters are at Lahore and Dalhousie. The total population of the Division increased from 4,696,636 in 1881 to 5,321,535 in 1891, and 5,598,463 in 1901. The total area is 17,154 square miles, and the density of population is 326 persons per square mile, compared with 209 for British territory in the Province as a whole. In 1901 Muhammadans numbered 3,332,175, or 60 per cent. of the total; while other religions included Hindus, 1,567,402; Sikhs, 661,320; Jains, 5,507; Buddhists, 6; Pārsīs, 228; and Christians, 31,815, of whom 25,248 were natives.

The Division contains six Districts, as shown below:—

District.	Area in square miles.	Population, 1901.	Land revenue and cesses, 1903-4, in thousands of rupees.
Montgomery	4,771	497,706	6,90
Lahore	3,704	1,162,109	12,55
Amritsar	1,601	1,023,828	14,54
Gurdāspur	1,889	940,334	17,72
Siālkot	1,991	1,083,909	17,27
Gujrānwāla	3,198	890,577	12,89
Total	17,154	5,598,463	81,87

Gurdāspur includes a few square miles of mountainous country, enclosing the hill station of Dalhousie (highest point, 7,687 feet); but otherwise the Division is flat. It contains 9,869 villages and 41 towns, of which the largest are LAHORE (population, 202,964, including cantonment), AMRITSAR (162,429), SIĀLKOT (57,956), GUJRĀNWĀLA (29,224), BATĀLA (27,365), and KASŪR (22,022). In commercial importance Lahore and Amritsar dwarf all other towns in the Division, but Siālkot and Batāla are considerably more than local centres. The history of LAHORE, and the religious importance of AMRITSAR, are described under those cities.

Besides the administrative charge of six British Districts, the Commissioner of Lahore has political control over the Native State of Chamba, which has an area of 3,216 square miles and a population (1901) of 127,834.

Lahore District (*Lāhaur*).—District in the Lahore Division, Punjab, lying between 30° 38′ and 31° 54′ N. and 73° 38′ and 74° 58′ E., with an area of 3,704 square miles. In shape it is nearly square, its south-east side resting on the Sutlej, beyond which lies Ferozepore. It is bounded by the Districts of Siālkot and Amritsar on the north-east, by Gujrānwāla on the north-west, and by Montgomery on the south-west.

Physical aspects.

The District falls naturally into four distinct parts. To the north-west the Rāvi runs parallel with its border and cuts off about 900 square miles of the Rechna Doāb, mostly included in the Sharakpur *tahsīl*—a barren tract, three-fourths of which lies waste, while the Muhammadan cultivators of the remainder show a marked inferiority in both effort and ability to the Hindus south of the Rāvi. The Rāvi alluvial tract, or Bet, stretches for 300 square miles along the south bank of the river, a low-lying country, bare and desolate, and constantly subject to diluvion. In striking contrast to it is the Lahore MĀNJHA, a plateau of 1,600 square miles, bounded north and south by high banks, which look down on the valley of the Rāvi to the north and the old bed of the Beās to the

south. Formerly a wilderness, the Mānjha has been turned by the Bāri Doāb Canal into a fertile and prosperous tract. South of the Mānjha lies the old valley of the Beās, a low-lying triangular patch of broken country, known as the Hithār, inundated by the Sutlej. Besides the Sutlej and Rāvi, the only stream of any importance is the Degh torrent, which traverses the Sharakpur *tahsīl*. There are no hills of any kind.

The District is of no geological interest, as its soil is entirely alluvial. The indigenous flora in the south-west is that of the Western Punjab, but only on a meagre scale. Trees are largely planted. Indigenous kinds are rare, except on the waste lands, where, before the construction of recent canal extensions, miles of scrub existed, composed chiefly of *van* (*Salvadora oleoides*), *jand* (*Prosopis spicigera*), and *kari* or *kair* (*Capparis aphylla*). The tamarisk-tree (*Tamarix articulata*), found throughout the drier parts of the Punjab, is abundant and conspicuous. The *ber* (*Zizyphus Jujuba*) is sometimes naturalized, and often planted.

Wolves are occasionally met with in the low-lying wastes of the Chūniān *tahsīl* and in parts of Sharakpur. In the Chānga Mānga forest *nīlgai* and wild hog are to be found. The fox, jackal, and wild cat are common. Game-birds are few.

The climate of Lahore does not differ from that of the Punjab plains in general, save that it is moister in June owing to the canal-irrigation. The monsoon as a rule lasts a very few days, and the great heat of July and August is rendered more intolerable by the excessive moisture in the air. The average annual rainfall varies from 22 inches on the north-east border to 13 inches on the south-west.

History.

The history of the District is that of its chief towns, LAHORE and KASŪR. It was created in 1849, when the Punjab was annexed, and the greater part of the Sharakpur *tahsīl* was added in 1855. During the Mutiny of 1857, a plot among the sepoys at Mīān Mīr to seize the fort of Lahore was fortunately discovered in time, and frustrated by the disarming of the mutinous regiments under the guns of a battery of horse artillery, supported by a British infantry regiment. Throughout the rebellion Lahore continued in a disturbed state. In July the 26th Native Infantry Regiment mutinied at Mīān Mīr, and, after murdering some of their officers, succeeded in effecting their escape under cover of a dust-storm. They were, however, overtaken on the banks of the Rāvi, and destroyed by a force under Mr. Cooper, Deputy-Commissioner of Amritsar. The strictest precautions were adopted in and around the city, until the fall of Delhi removed all further cause of apprehension.

The only pre-Muhammadan remains are a number of mounds on the Gujrānwāla border. They have never been excavated, but coins of the Indo-Parthian and Kushan dynasties have been found, as well

as a few fragments of terra-cotta figures. For the principal antiquities of the District see LAHORE CITY.

Population.

The District contains 7 towns and 1,533 villages. Its population at the last four enumerations was: (1868) 788,409, (1881) 924,106, (1891) 1,075,379, and (1901) 1,162,109. In the last decade there was a marked decrease in the population of the Sharakpur *tahsīl* and of the Rāvi valley, and a slight decrease in the Sutlej lowlands, while the population of the Mānjha and of Lahore city increased largely. The District is divided into the four *tahsīls* of Lahore, Chūniān, Kasūr, and Sharakpur, the head-quarters of each being at the place from which it is named. The towns are the municipalities of LAHORE, the administrative head-quarters of the Province and the District, KASŪR, KHEM KARAN, PATTĪ, CHŪNIĀN, KHUDIĀN, and SHARAKPUR.

The following table shows the chief statistics of population in 1901:—

Tahsīl.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Lahore . .	730	1	372	474,181	649·6	+ 10·2	33,807
Chūniān .	1,166	2	430	257,281	220·7	+ 11·4	7,436
Kasūr . .	820	3	345	311,690	380·1	+ 11·1	7,069
Sharakpur .	888	1	386	118,957	133·9	− 10·9	3,119
District total	3,704	7	1,533	1,162,109	313 7	+ 8·0	51,431

NOTE.—The figures for the areas of *tahsīls* are taken from revenue returns. The total area of the District is that given in the *Census Report*.

Muhammadans number 717,519, or 62 per cent. of the total; Hindus, 276,375, or 24 per cent.; and Sikhs, 159,701, or 14 per cent. Lahore city contains the head-quarters of several religious organizations, including branches of the Arya Samāj and of the Sanātan Dharm Sabha, two influential Hindu societies. The density is 314 persons per square mile, which is very much higher than the Provincial average (209). It varies from 650 in the Lahore *tahsīl*, which includes the city, to 134 in the Sharakpur *tahsīl*, three-fourths of which is uncultivated. Punjābi is the language both of the District and of the city, though Urdū is known and on occasions used by most of the city folk.

Jats (192,000) are the most important tribe. The Sikh Jat is a better cultivator and a better fighter than the Hindu or Muhammadan, and the Sikh of the MĀNJHA has been described in the article on AMRITSAR DISTRICT. Next to the Jats in numbers come the market-gardener tribe of Arains (128,000), who are settled on either

bank of the Rāvi. Rājputs (60,000) here, as elsewhere, are poor farmers and heavily in debt. Kambohs (23,000) and Dogars (8,000) are agricultural and pastoral tribes. The Mahtams (10,000) are a wild tribe, proclaimed under the Criminal Tribes Act. Brāhmans number 25,000 and Saiyids 10,000. Commercial castes include the Khojas (17,000), who are Muhammadans, the Khattrīs (42,000), and the Aroras (38,000), who are almost all Hindus, with a few Sikhs. Of the artisan classes, the Julāhās (weavers, 44,000), Telis (oil-pressers, 34,000), Tarkhāns (carpenters, 40,000), Kumhārs (potters, 40,000), Mochīs (shoemakers and leather-workers, 24,000), and Lohārs (blacksmiths, 16,000) are the most important; and of the menials, the Chūhrās (scavengers, 127,000), Māchhis (fishermen and water-carriers, 28,000), Jhīnwars (water-carriers, 20,000), Chhīmbās and Dhobis (washermen, 18,000), and Nais (barbers, 16,000). The Mīrāsīs (village minstrels) number 13,000. Other castes which appear in strength are the Kashmīrīs (16,000), who are immigrants from Kashmīr, and generally live by wool-weaving; and the mendicants (15,000). The Labānas (11,000) were formerly carriers, but their trade having been superseded by the railway they have now taken to cultivation. About 40 per cent. of the population are supported by agriculture.

The District contained 2,990 native Christians in 1901. Lahore was occupied in 1849 by the American Presbyterian Mission, which has out-stations at Kasūr and Wāgah; the principal institution is the Forman Christian College. The Church Missionary Society, which established a branch at Lahore in 1867, maintains a Divinity School for the purpose of training native Christians as clergy and catechists, and also a settlement at the village of Clarkābād. The Methodist Episcopal Mission started work at Lahore in 1883. The Punjab Religious Book Society has its central depository in Lahore, for supplying religious and other works in English and in the vernacular languages.

Agriculture.

With a rainfall ranging from 20 inches in the east to 8 inches in the west, cultivation naturally depends mainly on artificial irrigation. The soil is for the most part loam, varying in fertility according to the amount of sand it contains. In the low-lying land where surface drainage collects, the soil is stiff, with little sand. In the river tracts a pure alluvial loam is found, and the east of the Kasūr Mānjha is formed of good fertile land covered with a slight coating of sand. In places a still sandier soil occurs, fit only for growing the inferior pulses; and there are, chiefly in the low-lying river lands, considerable tracts of sandy and salt-impregnated soils which are worthless even under irrigation. In the Mānjha, however, the uncultivated waste is almost entirely confined to tracts to which the Bāri Doāb Canal has not been extended. In the western Mānjha the rainfall is too feeble and uncertain to ripen crops by itself; and where there

is no irrigation, the cultivated land is surrounded by an expanse of waste which serves as a catchment area for the rainfall.

The District is held almost entirely by small peasant proprietors, large estates covering about 202 square miles and lands leased from Government 90 square miles. The area for which details are available from the revenue records of 1903-4 is 3,594 square miles, as shown below:—

Tahsīl.	Total.	Cultivated.	Irrigated.	Cultivable waste.
Lahore . .	730	500	322	96
Chūniān . .	1,161	671	538	275
Kasūr . .	816	660	436	77
Sharakpur . .	887	291	259	357
Total	3,594	2,122	1,555	805

Wheat, the chief crop of the spring harvest, occupied 801 square miles, gram 236 square miles, and barley only 33 square miles. In the autumn harvest, cotton, the chief crop, covered 193 square miles, while maize is the principal food-grain (123 square miles), followed by rice (60) and great millet (38).

The area under cultivation increased by 8 per cent. during the ten years ending 1901, and the tendency is for it still to rise, partly owing to the extension of canal-irrigation and partly from the increased pressure of the population on the soil. In 1896-7 a colony was established on 35,000 acres of state lands irrigated by the Bāri Doāb Canal in the Chūniān *tahsīl*, and an additional area of 4,000 acres was thrown open in 1903. In this colony 24 new villages have been founded, the land having either been sold, or leased to carefully selected occupancy tenants. Little has been done to improve the quality of the seeds sown, though experiments in growing indigo and cultivating the *bāra* variety of rice have been made. Loans for the construction of wells are growing in popularity, and more than Rs. 40,000 was advanced during the five years ending 1903-4 under the Land Improvement Loans Act. Loans for the purchase of bullocks and seed amounted to Rs. 1,88,000 in the same period.

Few cattle are bred in the District, as most of the cultivators are supplied by itinerant dealers from Hissār, Multān, Montgomery, or Bahāwalpur with picked animals suitable for well and plough-work, while the north of the District is supplied chiefly from Amritsar, Gujrānwāla, and Jhang. The cattle found in the Mānjha present, in strength and condition, a great contrast to the weakly half-starved animals of the Rāvi and Sutlej valleys, partly because the Mānjha people can better afford the luxury of good cattle, and partly because only the strongest animals are able to stand the work entailed by

the deep Mānjha wells, the heavy ploughing of the canal-irrigated lands, and the long distances to which produce has to be transported in carts. There is a large trade in *ghī* and milk in the villages within easy reach of Lahore. Horses and ponies are most numerous in the Mānjha; 5 pony stallions are kept by the District board and 14 by the Army Remount department; 5 donkey stallions are kept by the District board and 13 by the Army Remount department. There are not many mules in the District, but donkeys are largely used as pack animals. Large numbers of sheep and goats are bred, and camels are used both as pack animals and for riding.

Of the total area cultivated in 1903-4, 1,555 square miles, or 73 per cent., were classed as irrigated. Of this area, 543 square miles were supplied from wells, 77 from wells and canals, 881 from canals, and 54 from streams and tanks. In addition, 116 square miles, or nearly 5½ per cent. of the cultivated area, are subject to inundation from the Rāvi and Sutlej. On the left bank of the Rāvi the greater part of the Mānjha is irrigated by the BĀRI DOĀB CANAL, while the low-lying lands of the Sutlej are irrigated from wells and by the Katora, Khānwāh, and Upper Sohāg canals of the UPPER SUTLEJ INUNDATION CANALS system. In the Rāvi valley, and in the alluvial land on the north bank of the Sutlej, cultivation depends largely on river inundation. In the Sharakpur *tahsīl*, north of the Rāvi, wells afford the only permanent irrigation, supplemented by inundation and channel irrigation from the Degh stream. There are 15,461 masonry wells, all worked with Persian wheels by cattle, besides 221 lever wells, water-lifts, and unbricked wells.

The District contains 23 square miles of 'reserved' and 187 of unclassed forests under the Forest department. The most important is the Chānga Mānga plantation, a 'reserved' forest with an area of 37 square miles, chiefly covered with *shīsham*, which is irrigated from the Bāri Doāb Canal. The Shāhdara plantation, another 'reserved' forest, has an area of 2 square miles. In 1903-4 the total forest receipts were 2·1 lakhs. In addition, 19 square miles are held as Reserves by the Military department, and 429 acres of unclassed forest are under the control of the Deputy-Commissioner.

Kankar or nodular limestone is found in most parts, and saltpetre is produced to some extent, chiefly in the Sharakpur *tahsīl*. There are no other mineral products of any value.

Trade and communications.

Arts and manufactures are mostly confined to Lahore city, and comprise chiefly the making of cotton fabrics, vegetable oils, ivory bangles, leather, furniture, and bricks, and printing on cloth. In all parts coarse cotton cloth is woven, and cotton cleaning, baling, and pressing are carried on. The District contains 20 cotton-ginning factories,

7 cotton-presses, and one combined ginning and pressing factory, which give employment to a total of 1,434 persons. The great factory centres are LAHORE, CHŪNIĀN, and KASŪR. In addition, Lahore city contains two cotton-spinning and weaving mills, employing 771 hands, the North-Western Railway workshops with 4,669 employés, an iron foundry with 57, an oil and flour-mill with 65, and two printing presses with 229. At Kasūr leather and cotton carpets are manufactured.

Lahore city is the commercial centre of the District, but Kasūr, Chūniān, and Raiwind are important for local trade. Large quantities of wheat, cotton, and oilseeds are exported to Karāchi, and cotton-seed to Ferozepore. The chief imports are piece-goods, brass and copper vessels, and iron; while Lahore city and cantonment import a great variety of supplies for their inhabitants. At Lahore are the head-quarters of the Punjab Banking Company, with a branch in the cantonment, and branches of the Alliance Bank of Simla, the Commercial Bank of India, and the National Bank of India.

Lahore is the point of junction of railways from Karāchi, Peshāwar, and Delhi, and the head-quarters of the North-Western State Railway. A branch from Ferozepore joins the Karāchi line at Raiwind, and the Tarn Tāran-Pattī section of the Amritsar-Pattī branch was opened in December, 1906. The grand trunk road passes through Lahore, and an important metalled road runs from Lahore to Ferozepore. The total length of metalled roads is 199 miles, and of unmetalled roads 856 miles. Of these, 103 miles of metalled and 17 of unmetalled roads are under the Public Works department, and the rest are maintained by the District board. Besides these, the roads along the banks of the main branches of the Bāri Doāb Canal are perhaps the best unmetalled roads to be found in the District. The grand trunk road crosses the Rāvi by a bridge of boats, and wheeled traffic can also pass over the railway bridge. There are twenty-seven ferries on the Rāvi; those on the Sutlej are maintained by the Ferozepore District board.

Famine.

A severe famine occurred in 1759, and the District was devastated by the terrible distress of 1783. Subsequent famines occurred in 1813, 1823, 1833, 1867, and 1896. The construction of the Bāri Doāb Canal has now, however, rendered the District practically secure from famine, except as regards the unirrigated Sharakpur *tahsīl*, which is in course of protection. In 1896–7 an area of 625 square miles was affected; the highest daily average relieved in any week was 10,425, and the total amount expended was Rs. 64,000. In 1899–1900 the whole of the Sharakpur *tahsīl* (894 square miles) was affected; but the highest daily average relieved in any week was only 2,559, and the expenditure was Rs. 34,000.

The District is in charge of a Deputy-Commissioner, aided by eight Assistant and Extra-Assistant Commissioners, of whom one is the subdivisional officer in charge of the Kasūr outpost. There are four *tahsīls*, each under a *tahsīldār* and a *naib-tahsīldār*. Lahore is the head-quarters of the Deputy-Inspector-General of Police, Central Range, an Assistant Conservator of Forests, a Superintending Engineer, and two Executive Engineers of the Canal department.

Administration.

The Deputy-Commissioner as District Magistrate is responsible for criminal justice, while civil judicial work is under a District Judge, supervised by the Divisional and Sessions Judge of the Lahore Civil Division, which includes this District only. The District Judge is assisted by a Subordinate Judge and four Munsifs, one for each *tahsīl*, those for Lahore and Sharakpur both sitting at Lahore, and those for Kasūr and Chūniān at the *tahsīl* head-quarters. A Small Cause Court Judge also sits at Lahore. The criminal work of the District is heavy. Dacoities have, however, decreased of late, owing to the strenuous measures that have been taken in conjunction with the Ferozepore local authorities to suppress them.

The Sikhs collected revenue in their usual way—taking one-quarter of the gross produce in kind, or levying acreage rates in cash on the more valuable crops, while in some cases Rs. 12 was paid in a lump sum on the land irrigated by a single well. A great part of the District was granted in *jāgīr*, and the land reserved by the State was partly farmed out to lessees, who exacted the legal amount and as much more as they dared. The cultivator, whether owner or not, was responsible for the revenue, and the distinction between owner and occupier was hardly recognized.

After annexation in 1849, a summary settlement was made, based on a deduction of 10 per cent. from the assumed value of the kind rents taken by the Sikhs. In each *tahsīl*, however, the reduced assessment was pitched too high. The demand was rigid and payable in cash, so that, when prices began to fall rapidly, a bad harvest in 1851 completed the general distress and amplified the growing distrust of the British revenue system. The regular settlement began in 1852 with grants of large *ad interim* reductions to the distressed villages, whereby the people were induced to return to their homes. The settlement report, completed in 1856, showed an all-round deduction of 10 per cent. on the summary settlement. The relief thus given seems to have been sufficient ; and the rise in prices which followed on the drought of 1861 made the assessment very moderate, so that by 1864 the resources of the people had generally doubled. The revised settlement took one-sixth of the gross value of the produce as the share of Government, and distributed the result thus obtained over all villages by an acreage rate.

In addition, a separate assessment was fixed on every well and every acre of canal-irrigation. The result was an increase of 33 per cent. on the regular settlement. The settlement was a rigid one, and rates were firmly adhered to, with the natural result that the distribution of an assessment, moderate in the aggregate, fell lightly on some villages and unduly heavily on others. In 1888 the District once more came under settlement. It was found that village prices had risen 20 to 25 per cent., and that cultivation had increased 33 per cent., almost entirely owing to the extension of the Bāri Doāb Canal to the uplands of the Mānjha, while the population had risen 36 per cent. The half net 'assets,' calculated at produce rates, amounted to 14 lakhs. The initial demand of the new settlement was 9½ lakhs. The average assessment on 'dry' land is R. 0–9–6 (maximum 15 annas, minimum 4 annas), and that on 'wet' land Rs. 6–5–0 (maximum Rs. 12, minimum 4 annas). The demand, including cesses, for 1903–4 was 12·5 lakhs. The average size of a proprietary holding is 4·4 acres.

The collections of land revenue and of total revenue are shown below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	7,00	8,22	10,21	10,47
Total revenue . .	11,58	16,31	25,80	26,62

The District contains seven municipalities: LAHORE, KASŪR, KHEM KARAN, PATTĪ, CHŪNIĀN, KHUDIĀN, and SHARAKPUR. Outside these, local affairs are managed by the District board, whose income in 1903–4 amounted to Rs. 1,22,895, mainly derived from a local rate. A large portion of the income is expended on public works.

The police force consists of 1,663 men of all ranks, including 70 cantonment and 685 municipal police, under a Superintendent, who usually has 2 Assistants, 2 Deputy-Superintendents (one in charge of Lahore city and the other in charge of the Kasūr subdivision), and 10 inspectors under him. Village watchmen number 1,387, besides some 12 town watchmen in Pattī and Sharakpur. There are 25 police stations. Lahore city contains three jails—the Central jail, District jail, and female penitentiary, all under one Superintendent. The Central jail has accommodation for 1,721 prisoners, the District jail for 578, and the female penitentiary for 364.

Lahore stands eighth among the twenty-eight Punjab Districts in literacy, 4·4 per cent. of its population in 1901 being able to read and write (7·4 per cent. males and 0·7 females). The proportion is highest in the Lahore *tahsīl*. The number of pupils under instruction was 6,279 in 1880–1, 14,437 in 1890–1, 19,271 in 1900–1, and 18,370 in 1903–4. In the last year the District contained 5 Arts colleges, 3 pro-

fessional colleges, 28 secondary schools, 112 primary schools, 8 special (public) schools, and 8 advanced and 154 elementary (private) schools, with 1,802 girls in public and 1,182 girls in private schools. The Arts colleges are the Government, Forman Christian, Dayānand, Islāmiya, and Oriental Colleges; the professional colleges are the Medical, Law, and Government Central Training Colleges. Other special institutions are: the Normal School, the Mayo School of Arts, the Medical School, the Railway Technical School, the Veterinary School, the Victoria Hindu Technical Institute, and classes in Yūnāni and Vedic medicine. All these institutions are in Lahore city. The District possesses 13 high schools for boys—one at Kasūr, and the rest, of which 3 are for European boys, at Lahore. The total expenditure on education in 1903-4 amounted to Rs. 10,08,000, of which the District fund contributed Rs. 29,000, municipal funds Rs. 23,000, and Government Rs. 6,16,000. There was also an income of Rs. 2,04,000 from school fees and Rs. 1,36,000 from other sources.

The medical institutions in Lahore city are the Mayo and Lady Aitchison Hospitals, and two dispensaries—one maintained by the municipality, and one for females by the American Presbyterian Mission. There is a hospital at Kasūr, and six outlying dispensaries. The number of cases treated in 1904 was 130,300, of whom 4,666 were in-patients, and 10,395 operations were performed. The expenditure was Rs. 1,00,000, of which municipal funds contributed Rs. 20,000. The Punjab Lunatic Asylum is situated at Lahore, as also are the Medical and Veterinary Colleges.

The number of persons successfully vaccinated in 1903-4 was 35,437, representing 30·9 per 1,000 of the population. The Vaccination Act has been extended to Lahore city.

(G. C. Walker, *District Gazetteer* (1893-4), *Settlement Report* (1894), and *Customary Law of the Main Tribes in the Lahore District* (1894); Saiyid Muhammad Latīf, *Lahore, its History, &c.* (1892).]

Lahore Tahsīl.—*Tahsīl* of Lahore District, Punjab, lying between 31° 14′ and 31° 44′ N. and 74° 0′ and 74° 40′ E., with an area of 730 square miles, of which three-fourths are in the tract known as the MĀNJHA, and the rest in the Rāvi lowlands. It is traversed by the Rāvi, the northern high bank of which roughly coincides with the northern borders of the *tahsīl*. The upland portion is irrigated by the Bāri Doāb Canal. The population in 1901 was 474,181, compared with 430,378 in 1891. The head-quarters are at LAHORE CITY (population, 186,884), and there are also 372 villages. The land revenue and cesses in 1903-4 amounted to Rs. 3,90,000.

Lahore City (*Lāhaur*).—Capital of the Punjab and of the Division and District which take their names from it, situated in 31° 35′ N. and 74° 20′ E., on the river Rāvi, at the junction of railway lines from

Karāchi, Peshāwar, and Calcutta: distance by rail from Calcutta, 1,252 miles; Bombay, 1,280; Karāchi, 784; and Delhi, 298. The city is the second largest in the Province; and the population, excluding that of the cantonment, was 138,878 in 1881, 159,597 in 1891, and 186,884 in 1901. The population in 1901 included 113,253 Muhammadans, 62,922 Hindus, 5,964 Sikhs, and 4,199 Christians.

Population.

Though legend attributes the founding of Lahore or Lohāwarāna to Lava, the son of Rāma, it is not probable that Lahore was founded before the first century A.D., as we neither find it mentioned in connexion with Alexander, nor is it described by Strabo or Pliny. On the other hand, it may possibly be the Labokla of Ptolemy, as Amakatis, which is mentioned by that author as near Labokla, has been identified by Cunningham with the ruins of Ambā Kāpi, about 25 miles from Lahore. The first certain historical record of Lahore is, however, that of Hiuen Tsiang, who mentions it as a large Brāhmanical city visited by him in A.D. 630 on his way to Jullundur. About this time it is probable that the capital of the kingdom of Lahore was transferred to Siālkot, as Albirūni speaks of Lahore as a province whose capital was Mandhūkūr, and it is noticeable that Al Masūdi makes no mention of Lahore.

History.

At the end of the tenth century the kingdom of Lahore was in the hands of a Brāhman dynasty, and in A.D. 988 Jai Pāl, the reigning monarch, was decisively beaten by Sabuktagīn. Mahmūd did not visit Lahore for more than twenty years after his first invasion of the Punjab, though he defeated Jai Pāl in 1001 and Anand Pāl in 1008. Lahore city was not at this time a place of great importance. In 1034 Lahore was seized by Nialtigīn, the revolted governor of Multān. He, however, was expelled, and in 1036 Lahore was made the capital of the Ghaznivid dominions east of the Indus. A final insurrection by the Hindus at Lahore in 1042 was quelled by Maudūd, and the city was left in charge of Malik Ayāz, whom Muhammadan tradition regards as the founder. During the reign of the first eight Ghaznivid princes Lahore was governed by viceroys as the head-quarters of a province, but during the reign of Masūd III (1099–1114) it was made the seat of government of the empire. After Masūd's death Muhammad Bahlīm, governor of Lahore, rebelled against Bahrām Shah in 1119, but was defeated; and in 1153 Khusrū Shāh again transferred the seat of government to Lahore, where it remained till 1193. The city was put to ransom by Muhammad of Ghor in 1181, and taken in 1186. From this time onwards Lahore was the centre of the opposition to the authorities at Delhi, while subject to the constant incursions of the turbulent Khokhars, who devastated the country round in 1205. On the death of Muhammad of Ghor in 1206 Kutb-ud-dīn Aibak was

crowned at Lahore; his lieutenant Kubācha lost the city to Tāj-ud-dīn Yalduz in 1206, but it was recovered by Kutb-ud-dīn in the same year. From the death of Arām Shāh in 1211 the province of Lahore became the bone of contention between Altamsh at Delhi, Nāsir-ud-dīn Kubācha at Multān, and Tāj-ud-dīn Yalduz at Ghazni. Yalduz in 1215 took Lahore from Nāsir-ud-dīn; but Altamsh defeated him in the following year, and made himself master of the city in 1217. On the death of Altamsh in 1236, Malik Alā-ud-dīn Jāni of Lahore broke out in revolt; and after he had been defeated and killed, Kabi-Khān-i-Ayāz of Lahore likewise rebelled in 1238, but submitted later.

Then follows a century during which Lahore lay at the mercy of incessant Mongol raids. It was taken by them in 1241, and put to ransom in 1246. The city was rebuilt by Balban in 1270; but in 1285 the Mongols returned, and Balban's son, prince Muhammad, was slain in an encounter on the banks of the Rāvi, the poet Amīr Khusrū being captured at the same time. Muhammad's son, Kai Khusrū, was appointed governor of the Punjab in his stead, but was murdered in 1287. The suburb of Mughalpura was founded about this time by Mongol settlers, and Dua the Chaghatai made a raid on Lahore in 1301. Under Alā-ud-dīn Khiljī, Ghāzī Malik, afterwards the emperor Tughlak Shāh, received charge of the territories of Dīpālpur and Lahore as warden of the marches against the Mongols, an office he seems to have discharged with some success. However, the Khokhars took Lahore in 1342, and again in 1394, when it was recovered by Sārang Khān. In 1398 Lahore was taken by a detachment of Tīmūr's army, and seems to have lain desolate till it was rebuilt by Mubārak Shāh in 1422. Jasrath Khokhar attacked Lahore in the same year, and again in 1431 and 1432, but without success; but in 1433 Shaikh Alī took the city, which, however, he had almost immediately to surrender. In 1441 Bahlol Khān Lodī was appointed to the fiefs of Lahore and Dīpālpur, and seized the opportunity of turning against his master Muhammad Shāh. Lahore seems to have enjoyed a period of peace under the Pathāns; but in the reign of Ibrāhīm Lodī, Daulat Khān Lodī, governor of Lahore, revolted and called in the aid of Bābar. Lahore was plundered by Bābar's troops in 1524, but in his final invasion in the next year he passed to the north through Siālkot.

The period of Mughal rule was the golden time of the history of Lahore, which again became a place of royal residence and grew to be, in the language of Abul Fazl, 'the grand resort of people of all nations'; it still retains many splendid memorials of this period. On the accession of Humāyūn, Kāmrān, his younger brother, took possession of Lahore and obtained the Punjab together with Kābul

and Kandahār. In the struggle between Humāyūn and Sher Shāh, Lahore was the military head-quarters of the Mughals, and narrowly escaped destruction on their temporary defeat. Humāyūn entered Lahore triumphantly in 1554, being received with every expression of joy; but after Akbar had come to the throne, the place was seized in 1563 by his younger brother Hākim, who, though expelled, made another assault in 1581, from which he was repelled by Akbar in person. Akbar held his court at Lahore from 1584 to 1598, where he was visited by some Portuguese missionaries, and by the Englishmen Fitch, Newbery, Leedes, and Story. He enlarged and repaired the fort, and surrounded the town with a wall, portions of which still remain, embedded in the modern work of Ranjīt Singh. Specimens of the mixed Hindu and Saracenic style adopted by Akbar survive within the fort, though largely defaced by later alterations. Under that great emperor, Lahore rapidly increased in area and population. The most thickly inhabited portion covered the site of the existing city, but long bazars and populous suburbs spread over the now desolate tract without the walls.

Some time after Jahāngīr's succession in 1605 prince Khusrū escaped from Agra, seized the suburbs of Lahore, and besieged the citadel; but he was quickly defeated and his followers put to death with great barbarity. Gurū Arjun was implicated in this rebellion and died in captivity, or, as the Sikh tradition has it, disappeared miraculously beneath the waters of the Rāvi. His shrine still stands between the Mughal palace and the mausoleum of Ranjīt Singh. Jahāngīr fixed his court at Lahore in 1622 and died near by in 1627. He erected the greater Khwābgāh or 'sleeping-place,' the Motī Masjid or 'pearl mosque,' and the tomb of Anārkali, now used as a repository of secretariat records. The palace originally consisted of a large quadrangle, surrounded on three sides by a colonnade of red stone pillars, with capitals intricately carved with figures of peacocks, elephants, and griffins. In the centre of the fourth side, overlooking the Rāvi, stood a lofty pavilion in the Mughal style, flanked by two chambers with elaborately decorated verandas of Hindu architecture. A garden filled the interior space of the quadrangle, with a raised platform of marble mosaic, while beneath the colonnade and pavilion underground chambers afforded cool retreats from the midday sun. The beauty of this building was largely disfigured by Sikh and European alterations, but a great deal has been done recently towards its restoration. Jahāngīr's mausoleum at Shāhdara forms one of the chief ornaments of Lahore, though even this has suffered. The tombs of Nūr Jahān, his devoted wife, and of her brother Asaf Khān, have fared worse, having been stripped of their marble facings and coloured enamels by the Sikhs.

Shāh Jahān erected a smaller palace by the side of his father's building, the beauty of which can still be discerned through the whitewash which covers the marble slabs and hides the depredations of the Sikhs. To the same emperor is due the range of buildings to the left of the Khwābgāh, with octagonal towers, the largest of which, known as the Samman Burj, contains the exquisite pavilion, inlaid with flowers wrought in precious stones, which derives its name of 'the Naulakha' from its original cost of 9 lakhs; together with the Shīsh Mahal, afterwards the reception-room of Ranjīt Singh, and the scene of the transfer by Dalīp Singh of the sovereignty of the Punjab to the British Government. Lahore was seized by Shahryār on Jahāngīr's death; but he was soon defeated, and between 1628 and 1637 Lahore enjoyed peace and prosperity under the rule of Alī Mardān Khān and Hakīm Alī-ud-dīn, generally known as Wazīr Khān. The mosque built by the latter in 1634, in a Perso-Mughal style, contains in the panellings of its walls and minarets the finest known examples of *khāshi* or inlaid pottery. This form of decoration, which must be reckoned among the lost arts of India, may also be studied to advantage in the mosque erected by Dai Anga, the wet-nurse of Shāh Jahān, in 1635, which, after being used for several years as an office, has now been vacated and restored; in the Chauburji, or 'four-turreted gateway,' built in 1641 by the princess Zeb-un-nisa, daughter of Aurangzeb; and in the Lahore fort, where the *khāshi* panels cover a surface of about 8,000 square yards. The panelling in the fort was carried out during the reigns of Jahāngīr and Shāh Jahān, and possesses a special interest in the fact that, contrary to the almost invariable rule in Muhammadan art, figures of men and animals are freely introduced. During the reign of Shāh Jahān, Lahore must have had a circuit of some 16 or 17 miles, the portion of the city outside the walls consisting of numerous thickly inhabited suburbs connected with the city gates by long bazars. The people of Lahore warmly espoused the cause of Dārā Shikoh, and supplied him with men and money on his flight westward in 1658.

The Shālamār gardens and pleasure-ground, situated 4 miles east of Lahore city, were laid out in 1667 by Alī Mardān Khān, the celebrated engineer of Shāh Jahān, in imitation of the garden planned by the emperor Jahāngīr at the sources of the Jhelum river in Kashmīr. The garden consisted of seven divisions representing the seven degrees of the Paradise of Islām, of which only three are included in the present area of about 80 acres, the remainder having fallen into decay. In the centre is a reservoir, bordered by an elaborately indented coping and studded with pipes for fountains. A cascade falls into it over a slope of marble corrugated in an ornamental

carved diaper. During the troublous times of Ahmad Shāh the gardens were neglected, and some of the decorative works were defaced and removed. Ranjīt Singh restored them; but at the same time he laid ruthless hands upon the marble pavilions of the central reservoir, using them to adorn the Rāmbāgh at Amritsar, and substituting structures of brick and whitewash in their stead.

Under Aurangzeb Lahore began to decline in population. Even before his time the foundation of Shāhjahānābād, or modern Delhi, had drawn away the majority of the classes dependent upon the court; and the constant absence of the emperor contributed still more to depress the city. Aurangzeb also constructed an embankment for three miles along the Rāvi, to prevent inundations, but with such undesirable success that the river completely altered its course, and left the town at a considerable distance. Among his other works, the Jāma Masjid or 'great mosque' ranks first, a stiff and somewhat ungraceful piece of architecture, which, in its poverty of detail, contrasts with the gorgeous profuseness of Agra and Delhi.

With the reign of Aurangzeb the architectural history of Lahore may be said to close, later attempts marking only the rapid decadence of art, which culminated in the tawdry erections of the Sikhs. From the accession of Bahādur Shāh till the establishment of Ranjīt Singh's authority at the beginning of the nineteenth century, the annals of Lahore consist of successive invasions and conquests by Nādir Shāh, Ahmad Shāh, and many less famous depredators. The magnificent city of the Mughal princes and their viceroys sank into a mere heap of ruins, containing a few scattered houses and a couple of Sikh forts within its shrunken walls; while outside, a wide expanse of broken remains marked the site of the decaying suburbs which once surrounded the capital.

As the capital of an outlying province Lahore early felt the effects of the decay of the empire. It was threatened by Banda's insurrection, and Bahādur Shāh marched there in 1712, but died before he could effect anything. A conflict ensued outside the walls of Lahore between his son Jahāndār and Azīm-ush-shān, in which the latter was defeated and drowned in the Rāvi. Under Farrukhsiyar the governor of Lahore was defeated by the Sikhs. He was succeeded by Abdus Samad Khān, who defeated the rebels and took Banda prisoner; and under his son Zakariya Khān the province had peace for twenty-one years (1717–38). He, however, found it prudent to submit to Nādir Shāh, who accepted a ransom in lieu of plundering the city. Ahmad Shāh Durrāni occupied Lahore in 1748, and again in his second invasion, after some resistance from Mīr Mannu (Muīn-ul-mulk), the new governor. Mīr Mannu was succeeded by his widow, and her abduction by the Wazīr was the pretext for Ahmad Shāh's fourth

invasion (1755). Lahore was occupied and placed under prince Tīmūr, from whom, however, it was taken by the Sikhs under Jassa Singh. They were expelled by the Marāthās in 1758, who installed Adīna Beg as governor. He died a few months later, and the Marāthā power was broken by Ahmad Shāh's victory at Pānīpat in 1761, while the Sikhs, who again besieged Lahore, were defeated in the following year with great slaughter at Barnāla, Kābuli Mal being left as governor of Lahore. The Sikh cavalry ravaged the country round, and after Ahmad Shāh's seventh invasion Kābuli Mal was ejected and the Sikhs again became masters of Lahore.

For the thirty years following Ahmad Shāh's final departure (1767–97) the Sikhs ruled in Lahore unmolested; then in 1797 Shāh Zamān appeared before the city and put it to ransom. The next year he appeared again, and on this occasion Ranjīt Singh received from him on his retirement a formal grant of the government of Lahore. The rise of Ranjīt Singh's power made Lahore once more the centre of a flourishing, though ephemeral, kingdom. The great Mahārājā stripped the Muhammadan tombs of their ornaments, which he sent to decorate the temple at Amritsar; but he restored the Shālamār gardens, erected a really beautiful *bāradari* in the space between the palace and the Jāma Masjid, and also built a number of minor erections in the very worst taste. His mausoleum, a mixed work of Hindu and Muhammadan architecture, forms one of the latest specimens of Sikh workmanship. The collapse of the Lahore kingdom under Ranjīt Singh's successors forms a chapter of Provincial history (see PUNJAB). In December, 1846, the Council of Regency was established, and the British Resident became the real central authority at Lahore. On March 29, 1849, at the conclusion of the second Sikh War, the young Mahārājā Dalīp Singh resigned the government to the British. In 1849 the environs still remained a mere expanse of crumbling ruins; and the houses of the first European residents clustered around the old cantonment, on a strip of alluvial lowland, south of the town, running parallel to a former bed of the Rāvi. Gradually, however, the station spread eastward; and now a new town covers a large part of the area once given over to ruins and jungle, while every year sees fresh additions to the renovated capital.

Description.

The native city covers an area of about one square mile. It was formerly surrounded by a brick wall, rising to a height of 30 feet and strengthened by a moat and other defences. But the moat has been filled in and the wall razed, and a garden now occupies the site of the trench and wall, encircling the city on every side except the north. Though situated in an alluvial plain, the present town stands high on the débris of ages. A metalled

road runs round the outer side of the rampart, and gives access to the city by thirteen gates. The citadel or fort rises upon a slight but commanding eminence at the north-eastern angle, and abuts northward on the old river bed, while the esplanade stretches over an open space to the south and east. Within the city, narrow and tortuous streets, as well as lanes, some of them ending in *culs-de-sac*, and lined by tall houses, give Lahore a mean and gloomy appearance; but the magnificent buildings of the Mughal period serve to relieve the dullness of its domestic architecture, and many of the houses are adorned with beautiful wood-carving. On the north-eastern side especially, the mosque of Aurangzeb, with its plain white marble domes and simple minarets, the mausoleum of Ranjīt Singh, with its rounded roof and projecting balconies, and the desecrated façade of the Mughal palace, stand side by side in front of an open grassy plain, exhibiting a grand *coup d'œil*.

The European quarter, or civil station, lies on the south and east of the city. The older part, known as Anārkali, lies to the south, and originally contained a cantonment, abandoned in 1851–2 on account of its unhealthiness. Anārkali is connected with the city by a fine road known as the Old Mall, and contains the Secretariat buildings, District court-house, Government College, Punjab University, Senate Hall, the new University Hall, Town Hall, Museum, the Punjab Public Library converted from an old Mughal pavilion, Mayo and Lady Aitchison Hospitals, the Volunteer Club and many other public buildings, and a fine public garden. At the south end of the Old Mall stands the Chauburji, which formed the gateway of the garden of Zeb-un-nisa, the accomplished daughter of Aurangzeb. To the east is the railway colony, grouped about the station in the quarter known as the Naulakha. It contains a railway school building, a theatre, and well-laid-out playgrounds. Near the railway station to the west are a large temple and *dharmsāla* built by Mūl Chand, merchant. On the Empress Road a large building has been constructed for railway offices. To the south-east the Upper Mall stretches out for a distance of 3 miles to Government House and the Lawrence and Montgomery Halls. This road is the main thoroughfare of the newer residential quarter; and on or near it are situated the Cathedral and Orphanages, and the Chief Court, besides sundry Government offices and most of the European shops. A large public garden surrounds the Lawrence and Montgomery Halls, containing a zoological garden, with a good collection of water-fowl. The village of Mozang on the south-east of the city is now almost surrounded on three sides by European residences. Beyond Government House on the way to LAHORE CANTONMENT is the Aitchison Chiefs' College.

The municipality was created in 1867. The income during the ten

years ending 1902–3 averaged 5·3 lakhs, and the expenditure 5·1 lakhs. In 1903–4 the income and expenditure were 6·4 lakhs and 6·1 lakhs respectively. The chief source of income was octroi (Rs. 4,58,000), while the main items of outlay were conservancy (Rs. 72,000), education (Rs. 11,000), hospitals and dispensaries (Rs. 33,000), water-supply and drainage (Rs. 81,000), administration (Rs. 72,000), public safety (Rs. 1,15,000), and public works (Rs. 62,000).

Administration.

A system of water-works was opened in 1881. The supply is drawn from wells outside the city, whence it is pumped by engines direct into four connected tanks. The city, civil station, railway colony, and the village of Mozang are supplied by this system, and the estimated daily supply is ten gallons per head according to the population in 1901. A separate engine with a separate main to the reservoir is also being erected, to guard against accidents and to relieve the strain on the one engine now working. A drainage system, which was completed in 1883, is being remodelled. The Upper Mall is now lighted by electricity.

Commerce and industries.

Most of the decorative arts for which Lahore was once famous have greatly declined or vanished altogether. The silk-workers, who once were famous for superior cloths of Bokhāra thread, now turn out only inferior and coarse materials, though the trade in these is flourishing enough. The mystery of gold and silver wire-drawing has entirely disappeared, and so has the production of glass, enamel, and arms, and but little gold embroidery is now done. On the other hand, trades of a useful character have largely increased, among which may be mentioned the manufacture of vegetable oils, candles, and soap, sulphuric and nitric acids, and printing, lithography, and book-binding. The leather trade is an important one, and a large quantity of saddlery and shoes is turned out annually. Cotton fabrics are largely made, and a great deal of printing on coarse cotton stuffs is done. Good woollen blankets are produced, and fine *pashmīna* woollen stuffs. There is a considerable output of wooden furniture, decorated as well as plain. A large quantity of bricks and tiles are burnt. Lahore is, moreover, an important centre for the collection of agricultural produce; and five cotton-ginning factories, three cotton-presses, and one combined ginning and pressing factory employed 427 hands in 1904. Of the other factories, the most important are the North-Western Railway workshops, with 4,669 employés; two spinning and weaving mills, with 771; the Punjab Oil and Flour Mills, established in 1881, which turn out large quantities of flour and of castor and other vegetable oils, and in 1904 employed 65 hands; and an iron foundry, which in the same year employed 57. Two printing presses give employment to 229.

The Punjab Banking Company, the Punjab National Bank, and the People's Bank have their head-quarters at Lahore; and the Bank of Bengal, the Alliance Bank of Simla, the Commercial Bank of India, and the National Bank of India have branches in the city.

Education.

As the head-quarters of the Local Government, Lahore naturally contains the principal educational institutions of the Province. These comprise the Punjab University, with five Colleges—the Government, Forman Christian, Dayānand Anglo-Vedic, Islāmia, and Oriental; also the Medical and Law Colleges, and the Central Training College. The city possesses twelve high schools: the Central Model High School, the Aitchison Chiefs' College, and the Dayānand, Union Academy, Madrasat-ul-Musalmīn, and Sanātan Dharm Sabha schools, a school maintained by the Presbyterian Mission, the Victoria and Oriental schools, and three schools for Europeans. Its girls' schools include two high schools (one for Europeans) and three middle schools (two for Europeans). Technical and special education are provided by the Mayo School of Art, the medical school, the railway technical school, the Veterinary College, the Hindu Technical Institute, and the Government normal school. Classes are also held in Yūnāni and Vedic medicine. Printing presses are numerous, and produce 20 English and 66 vernacular periodicals, of which the most important are the *Civil and Military Gazette*, the *Tribune*, and the *Observer*.

Lahore is the head-quarters of the Anglican diocese of that name. The Cathedral of the Resurrection, a fine building in the later Early English style, was consecrated in 1887. There is also a railway church in Naulakha. The Church Missionary Society has a theological training school at Lahore. The city is also the head-quarters of the Roman Catholic diocese of Lahore, and contains the Pro-Cathedral. A fine new Cathedral, in a style which is a mixture of Roman and Byzantine, will shortly be completed. The American Presbyterian Mission has a church, and several native churches exist in the city. Missions are conducted by the Church Missionary Society and the Methodist Episcopal Mission.

Lahore is the head-quarters of the Punjab Light Horse and of the 1st Punjab Volunteer Rifles, the Lahore contingent consisting of a troop of the former and three and a half companies of the latter. The fort is garrisoned by small detachments of British and Native infantry. The chief medical institutions are the Mayo and Lady Aitchison Hospitals, besides the Medical College above mentioned.

Lahore Cantonment.—Cantonment and head-quarters of the third or Lahore division of the Northern Command in the District of the same name, Punjab, situated in 31° 31′ N. and 74° 22′ E., 3 miles east of the civil station of Lahore. It has two railway stations: Lahore

Cantonments East, on the branch of the North-Western Railway to Delhi; and Lahore Cantonments West, on the branch to Multān. Population (1901), 16,080. Till 1906 the cantonment was called Miān Mīr. The troops were moved here from the Anārkali quarter of Lahore in 1851–2 on account of the unhealthiness of the latter; but the new site is, partly on account of its defective water-supply, a notoriously unhealthy station. The ordinary garrison consists of two batteries of field artillery, one regiment of native cavalry, and two battalions of native infantry. The cantonment stands on an open and arid plain, originally bare of trees, but now gradually growing greener as canal-irrigation extends and the avenues of trees along the roadside grow up. The site is said to have been at one time named Haslīmpur. Prince Dārā Shikoh, brother of Aurangzeb, who was put to death by that emperor on ascending the throne, was a disciple of a famous Muhammadan saint or *pīr*, Mullan Shāh, known as Miān Mīr. He purchased the village of Haslīmpur, and bestowed it on his religious preceptor, after whom it was renamed. The mausoleum of the holy man is a handsome domed building of white marble and red Agra sandstone, with a mosque in the courtyard. The income and expenditure from cantonment funds during the ten years ending 1902–3 averaged Rs. 50,000. The Punjab Banking Company has a branch here.

Lāhul.—Himālayan *wazīri* or canton of the Kulū subdivision of Kāngra District, Punjab, lying between 32° 8′ and 32° 59′ N. and 76° 49′ and 77° 47′ E., with an area of 2,255 square miles. The population (1901) is only 7,205, or less than 4 persons per square mile. It is separated from Kāngra and Kulū proper on the south, and from Spiti on the east, by two mountain ranges which give off southwards the Beās and Rāvi and eastwards the Spiti river, a tributary of the Sutlej; they culminate at their junction in the Shurgan Tunga or Deo-Tibba peak (21,000 feet). On the north Lāhul is bounded by the Ladākh province of Kashmīr, and on the west by Chamba State. The Chandra and Bhāga streams rise on the Bārā Lācha, or pass, (16,500 feet) in the north, and, flowing at first in almost opposite directions, unite at Tandi, whence the combined waters of the Chandra-Bhāga or Chenāb flow into Chamba. Between the two rivers, an isolated mass of mountains attains still greater dimensions, consisting of one almost unbroken ice-field, with, at rare intervals, impassable barriers of naked rock. South of the highest peak, 21,415 feet above the sea, a glacier stretches downward for 12 miles; while east and west the hills, though slightly inferior in elevation, still reach the limits of the snow-line, and flank the valley on every side, except along the narrow outlet of the Chenāb. In such a waste of rock and ice, villages can be planted only in a few comparatively favoured spots, among the lower valleys of the Chandra and Bhāga, from Old Koksar on the former to Dārcha on the latter

river. The remainder of Lāhul is entirely uninhabited, except for a few weeks in summer, when the Kāngra shepherds bring up their flocks for pasturage. Picturesque knots of houses, however, nestle here and there in sheltered nooks, amid green irrigated fields made beautiful by the exquisite Himālayan flora. The summer is almost rainless, but there is heavy snowfall in winter, the whole country being covered from December to April. The mean temperature at Kardang in the valley of the Bhāga is 29° in December and 59° in June. The inhabitants of the valleys of the Chandra and Bhāga are Buddhists, and of that of the united Chandra-Bhāga Hindus. The inhabited portions of the Lāhul valley have an estimated elevation of 10,000 feet above sea-level. Kangser, the highest village, stands at a height of 11,345 feet. The principal villages are KYELANG and Kardang on opposite sides of the Bhāga, on the trade route between the Rohtang pass from Kulū and the Bārā Lācha leading into Ladākh.

The Lāhul valley is mentioned as early as the seventh century in the itinerary of Hiuen Tsiang, the Chinese Buddhist pilgrim, who notices it under the name of Lo-hu-lo, as a district lying north-east of Kulū. In the earliest times, it probably formed a dependency of the Tibetan kingdom; and on the disruption of that kingdom in the tenth century, it seems to have been included in the principality of Ladākh. We have no information to show the period at which it became independent, though reasons have been adduced for believing that that event preceded the reorganization of Ladākh about 1580. An epoch of native rule under petty chiefs (Thākurs) ensued, during which the various local families appear to have paid tribute to Chamba. Four or five of these families have survived to the present day, and are still in possession of their original territories, which they hold in *jāgīr*, subject to the payment of tribute or *nazarāna*. About the year 1700, the supremacy passed to Kulū, in the reign of Budh Singh, son of Rājā Jagat Singh, a contemporary of Shāh Jahān and Aurangzeb. Thenceforward, Lāhul followed the fortunes of Kulū, until they passed together under British rule in 1846. Out of a total area of 2,255 square miles, less than 5 square miles are returned as under cultivation. Barley forms the principal crop, but wheat grows in the lower glens. Cultivation depends entirely on small irrigation canals, constructed and kept in repair by the village landowners. The grain produced does not suffice for local consumption, being supplemented by imports from Kulū. The Lāhulīs hold in their hands the trade between Ladākh and Central Asia on the one hand, and Kulū and the Punjab on the other. Collecting the merchandise from the north at Patseo, a few miles north of Dārcha, where a large encampment of traders from Ladākh, Central Asia, Tibet, and Kulū is formed, they pass annually into Kulū at the end of summer, driving their ponies and donkeys, goats and sheep, laden

with *pashm* or shawl-wool, borax, and cloth; while on their return journey they bring metal vessels, sugar, rice, wheat, tobacco, pepper, ginger, and turmeric.

The Lāhulīs keep only a few sheep and goats, as the snow lies too long and too deep in the winter for the flocks to live out of doors as they do in Ladākh. For a very long time, therefore, the upper ends of the main valleys, which are uninhabited, and the grounds high above the villages in the inhabited parts, have been utilized by the shepherds of Kāngra, Chamba, and Kulū. The snow begins to disappear in these places about the beginning of June; the shepherds do not ordinarily enter Lāhul before the end of that month, and they leave it again early in September, by which time the frost is keen, and the rainy season in the Outer Himālayas has come to an end. In the fine dry climate of Lāhul the sheep escape foot-rot and other diseases which constantly attack flocks kept during the rains on the southern slopes of the Outer Himālayas. The sheep arrive wretchedly thin, but by the time they are ready to leave are in splendid condition.

Lāhul is administered by the Assistant Commissioner of Kulū, under whom Thākur Amar Chand, a descendant of one of the old rulers and a magistrate of the second class and a Munsif, exercises considerable local influence. The land revenue, as reassessed in 1891, amounts to Rs. 4,916.

Laihka (Burmese, *Legya*).—A large State in the eastern division of the Southern Shan States, Burma, lying between 20° 47′ and 21° 36′ N. and 97° 19′ and 98° 9′ E., with an area of 1,433 square miles. It is bounded on the north by Möngküng and Möngnawng; on the east by Möngnawng and Möngnai; on the south by Möngnai, Möngsit, and Möngpawn; and on the west by Möngpawn and Lawksawk. The country is hilly and broken, the Nam Teng, an important affluent of the Salween, running north and south through the centre of the State. The early annals of Laihka are largely legendary. Its history in the years following the annexation of Upper Burma is briefly referred to in the article on the SOUTHERN SHAN STATES. The country to the east of the Nam Teng is only now gradually recovering from the ravages caused by the troops of the Linbin confederacy in 1886. The greater part of the rice cultivation of the State is low-lying, and irrigated by the Nam Teng and Nam Pawn and their tributaries. The Taungthus work *taungyas* on the hills in the south-west of the State, and small gardens near their villages. Laihka is chiefly noted for its ironwork. Iron ore is found in the south-west corner near Panglong, where it is worked into all kinds of domestic and agricultural implements. The population, which in 1881 was estimated at 30,000, had been reduced by 1887, in consequence of the attacks of the Linbin confederacy, to something like 100. In 1891 it was estimated at about 9,000,

and in 1901 was found to be 25,811, or almost what it was before annexation. Of the total in 1901, 21,197 were returned as speaking Shan, 1,877 Taungthu, 1,532 Palaung, and 1,008 Yin. The State contains 531 villages, the Sawbwa having his head-quarters at Laihka near the Nam Teng, an old fortified post of some importance, with a population in 1901 of 1,150. The head-quarters of the Assistant Superintendent in charge of the eastern division are at Loilem near the Taunggyi-Kengtung road. The revenue in 1903-4 amounted to Rs. 24,000 (mainly from *thathameda*); and the chief items of expenditure were Rs. 10,000 tribute to the British Government, Rs. 6,000 spent on officials' salaries and administration charges, Rs. 6,000 paid into the privy purse, and Rs. 2,000 devoted to public works.

Lake Fife (Kharakvāsla).—Reservoir in the Haveli *tāluka* of Poona District, Bombay, situated in 18° 25′ N. and 73° 47′ E., 12 miles south-west of Poona city, constructed in 1868 to feed the MUTHĀ CANALS. The work cost 31 lakhs, and has a surface area at full supply level of 3,753 acres.

Lake Whiting.—Reservoir in the Bhor State, Bombay, situated in 18° 11′ N. and 73° 51′ E., constructed in 1881, to feed the NĪRA CANAL. The work cost 21 lakhs, and has a surface area of 3,584 acres. Its extension is under consideration.

Lākhāpadar.—Petty State in KĀTHIĀWĀR, Bombay.

Lakhi Hills (*Laki*).—An offshoot of the KĪRTHAR range in the Kotri *tāluka* of Karāchi District, Sind, Bombay. The Lakhi is the most easterly of a number of hill ranges in the western part of Sind, extending between Baluchistān and the alluvial tract of the Indus, and also between the desert of Shikārpur and Karāchi. Length of range, about 50 miles; greatest elevation, 1,500 to 2,000 feet; situation (centre) 26° N. and 67° 50′ E., the latitude of the northern limit being 26° 20′ and of the southern 25° 12′. The hills are for the most part of recent formation, containing marine remains in great quantities. Huge fissures, apparently produced by earthquakes, traverse the range; and the frequent occurrence of hot springs and sulphurous exhalations is a sign of volcanic action. Some parts, again, appear to be of more ancient formation, as they yield lead, antimony, and copper. The whole tract is wild and dreary. Near the town of Sehwān the Lakhi range terminates abruptly on the Indus, in a nearly perpendicular face of rock 600 feet high, which presents an imposing appearance from the river.

Lakhimpur District. — District in Eastern Bengal and Assam, occupying the extreme eastern portion of the Brahmaputra Valley. The actual boundaries have never been definitely determined; but an inner line has been laid down, which serves as the limit of ordinary British jurisdiction, without prejudice to claims to the territory on the

farther side. The tract of land thus defined lies between 26° 49′ and 27° 52′ N. and 93° 46′ and 96° 5′ E., with an area of 4,529 square miles. In its broader sense, the District is bounded on the west by Darrang and Sibsāgar; on the north by the Daflā, Mīri, Abor, and Mishmi Hills; on the east by the Mishmi and Khamti Hills; and on the south by the hills inhabited by independent tribes of Nāgās.

Physical aspects.

The portion of the District included within the inner line consists of a broad plain surrounded on three sides by hills, and divided by the channel of the Brahmaputra. Near the river lie extensive marshes covered with reeds and elephant-grass, but as the level rises these swamps give place to rice-fields and villages buried in thick groves of fruit trees and bamboos. South of the Brahmaputra a great portion of the plain is covered with trim tea gardens, many of which have been carved out of the dense forest, which still lies in a belt many miles broad along the foot of the hills; but on the north bank the area under tea is comparatively small, and there are wide stretches of grass and tree jungle. The aspect of the plain is thus pleasingly diversified with forest, marsh, and river; and the hills themselves, with their snow-capped summits, afford a striking background to the scene on a clear day in winter. The BRAHMAPUTRA runs through the District, receiving on the north bank the DIBĀNG, the DIHĀNG, and the SUBANSIRĪ. Even in the dry season large steamers can proceed to within a few miles of Dibrugarh, and during the rains boats of considerable burden can go as far as Sadiyā. Beyond that place the river is still navigable for light native craft almost to the Brahmakund. The principal tributaries on the south bank are the NOA DIHING, the DIBRU, and the BURHI DIHING. There are no lakes of any importance, but there are numerous *bīls* and marshes, of which the largest are at Bangalmāri and Pabhamāri on the north bank of the Brahmaputra.

The plain is of alluvial origin, consisting of a mixture of clay and sand in varying proportions. The hills which surround it on three sides belong to the Tertiary period, and are composed of sandstones and shales.

Low-lying ground is covered with high grass and reeds, the three principal varieties being *ikra* (*Saccharum arundinaceum*), *nal* (*Phragmites Roxburghii*), and *khagari* (*Saccharum spontaneum*). The central portion of the plain is largely under cultivation, but near the hills the country is covered with dense evergreen forest.

Wild animals are common, including elephants, rhinoceros, buffaloes, bison, tigers, leopards, bears, and deer. A curious species of wild goat or antelope called *takin* (*Budorcas taxicolor*) is found in the Mishmi Hills, but no European has yet succeeded in shooting a specimen. In 1904 wild animals killed 1,559 cattle, and rewards were

paid for the destruction of 58 tigers and leopards; 39 elephants were also captured in that year. Small game include florican, partridge, jungle-fowl, geese, duck, and snipe.

The climate is particularly cool and pleasant, and only during the three months of June, July, and August is inconvenience experienced from the heat. In December and January fogs are not uncommon, and fires are often needed at night even in the month of March. The District, as a whole, is healthy, except in places where the forest has been recently cleared.

The hills with which Lakhimpur is surrounded on three sides, and the vast expanses of evergreen forest, tend to produce a very heavy rainfall. At Pathālipām, under the Mīri Hills, the annual rainfall averages 168 inches, but towards the south it sinks to 100 inches, and in places to a little less. The great earthquake of June 12, 1897, did very little damage, and the District does not suffer much from either storm or flood.

History.

The earliest rulers of Lakhimpur of whom tradition makes any mention seem to have been Hindus of the Pāl line, whose capital was situated in the neighbourhood of Sadiyā. About the eleventh century they were overthrown by the Chutiyās, a tribe of Tibeto-Burman origin, who entered Assam from the north-east and established themselves on the upper waters of the Brahmaputra. In 1523 the Chutiyās themselves, after some centuries of conflict, were finally crushed by the Ahoms, a Shan tribe who had descended from the Pātkai into Sibsāgar District nearly 300 years before; and Lakhimpur, with the rest of Assam proper, formed part of the territories of the Ahom Rājā. Towards the close of the eighteenth century, when the Ahom kingdom was tottering to its fall, the high-priest of the Moamarias, a Vaishnavite sect, rose in rebellion against the reigning king. For a time, the rebels met with a measure of success; but when the royal arms were again in the ascendant, the Ahom prime minister revenged himself by desolating the whole of Lakhimpur lying south of the Brahmaputra. A few years later the Burmans entered the valley, at the invitation of one of the claimants to the Ahom throne, and were guilty of gross atrocities before they were finally expelled by the British in 1825. The District was by this time almost depopulated and was reduced to the lowest depths of misery. During the confusion attendant on the break-up of the Ahom kingdom, the head of the Moamaria sect established himself in a position of quasi-independence in the Matak territory, a tract of land lying between the Brahmaputra and the Buri Dihing, and bounded on the east by an imaginary line drawn due south from Sadiyā. On the occupation of the country by the British this chief, who bore the title of Bor Senāpati, was confirmed in his fief on the understanding that

he provided 300 men for the service of the state. The arrangement was, however, found to be unsatisfactory; and, in lieu of any claim on the services of his subjects, Government accepted a revenue of Rs. 1,800. In 1842, after the death of the Bor Senāpati, the whole of the Matak territory was annexed.

Matak was not the only fief carved out of the decaying Ahom empire. In 1794 the Khamtis crossed the Brahmaputra, and ousted the Assamese governor of Sadiyā. The Ahom king was compelled to acquiesce in this usurpation, and the Khamti chief was accepted as a feudatory ruler of Sadiyā by the British Government. In 1835 it was found necessary to remove him for contumaciously seizing some territory claimed by the Matak chief, in defiance of the orders of the British officer, and the country was brought under direct administration. Four years later the Khamtis rose, surprised Sadiyā, killed the Political Agent, Colonel White, and burned the station. The rising was, however, put down without difficulty, and the tribe has given no trouble since that date. In 1833 the North Lakhimpur subdivision was handed over to the Ahom Rājā, Purandar Singh, as it was at that time proposed to establish him as a feudatory prince in the two upper Districts of the Assam Valley. Five years later this territory was again resumed, as the Rājā was found unequal to the duties entrusted to him. The history of the District since it has been placed under British administration is a story of continuous development and increasing prosperity. From time to time the tribes inhabiting the Abor and Mishmi Hills have violated the frontier, but their raids have had no material effect upon the general welfare of the people. There are few remains of archaeological interest in Lakhimpur, but the ruins found near Sadiyā show that this portion of Assam must once have been under the control of princes of some power and civilization.

Population.

The population of the District at the last four enumerations was: (1872) 121,267, (1881) 179,893, (1891) 254,053, and (1901) 371,396. Within twenty-nine years the population has more than trebled, this enormous increase being partly due to the fact that Lakhimpur, unlike Lower and Central Assam, has been healthy, so that the indigenous inhabitants increased in numbers, but still more to the importation of thousands of coolies required for the tea gardens and other industries of the District. Lakhimpur is divided into the two subdivisions of Dibrugarh and North Lakhimpur, with head-quarters at the places of the same name. It contains one town, Dibrugarh (population, 11,227), the District head-quarters; and 1,123 villages.

The following table gives statistics of area, towns and villages, and population according to the Census of 1901:—

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
North Lakhimpur	1,275	...	323	84,824	67	+ 33·7	2,636
Dibrugarh . .	3,254	1	800	286,572	88	+ 50·3	10,443
District total	4,529	1	1,123	371,396	82	+ 46·1	13,079

About 90 per cent. of the population in 1901 were Hindus, 3 per cent. Muhammadans, and 5 per cent. members of animistic tribes. The proportion of foreigners is very high, and 41 per cent. of the people enumerated in Lakhimpur in 1901 had been born outside the Province. A large number of these immigrants have left the tea gardens, and settled down to ordinary cultivation in the villages. Assamese was spoken by only 39 per cent. of the population, while 21 per cent. returned Bengali, and 20 per cent. Hindī or Mundārī, as their usual form of speech.

The principal Assamese castes are the Ahoms (59,100), the Chutiyās (17,500), the Kāchāris (25,200) and the Mīris (24,900). The chief foreign castes are Mundās (30,200), Santāls (17,500), and the Bhumij, Bhuiyā, and Oraon. The higher Hindu castes are very poorly represented. Members of European and allied races numbered 469 in 1901. In spite of the existence of coal-mines, oil-mills, railways, and a prosperous trading community, 87 per cent. of the people are dependent upon the land for their support.

A clergyman of the Additional Clergy Society is stationed at Dibrugarh, and there are two missionaries in the District. The total number of native Christians in 1901 was 2,606.

Agriculture.

The soil varies from pure sand to a stiff clay, which combine in varying proportions to form a loam. The high land is admirably adapted for the growth of tea; and the abundance of the rainfall, the immunity from flood, the large proportion of new and unexhausted land, and the opportunities for selection afforded by the sparseness of the population, combine to render agriculture a more than usually lucrative occupation.

The table on the next page shows what a large proportion of the District is still lying waste.

Rice is the staple crop, and in 1903–4 covered 231 square miles, or 57 per cent. of the total cropped area. More than four-fifths of the rice crop is usually *sāli* or transplanted winter rice, and the greater part of the remainder is *āhu*, or summer rice grown in the marshy tracts before the floods rise. Tea is the only other crop of any importance; but minor staples include pulse (6,100 acres), mustard

(8,000 acres), and sugar-cane (3,500 acres). No agricultural statistics are prepared for the land occupied by hill tribes, who pay a poll tax irrespective of the area cultivated. The usual garden crops are grown, including plantains, vegetables, tobacco, *pān* or betel-leaf, and areca-nut. The last two were introduced into Lakhimpur after the country had been occupied by the British.

Subdivision.	Area in square miles shown in revenue accounts.			Forest area in square miles.
	Settled.	Unsettled.	Cultivated.	
North Lakhimpur . .	137	1,138	106	29
Dibrugarh . . .	526	2,728	282	311
Total	663	3,866	388	340

Lakhimpur was the scene of the first attempts at tea cultivation by Government in 1835, and the Assam Company commenced operations here in 1840. The industry has passed through many vicissitudes, which were chiefly due to speculation, but the abundant rainfall and fertile soil have always given a large measure of prosperity to the gardens of Upper Assam. Of recent years there has been a great expansion of the industry. In 1880, 19,700 acres were under cultivation. By 1896 the area had risen to 48,200 acres, and in the next five years there was a further increase of 20,000 acres. In 1904 there were altogether 143 gardens with 70,591 acres under plant, which yielded more than 30,000,000 lb. of manufactured tea and gave employment to 199 Europeans and 100,849 natives, the latter of whom had been recruited from other parts of India. The principal companies are the Dum Dumā Company, with head-quarters at Dum Dumā; the Jokai Company, with head-quarters at Pānitolā; the Assam Frontier Tea Company, with head-quarters at Tālāp; and the Dihing Company, with head-quarters at Khowāng.

Apart from tea, the District has witnessed a rapid increase of cultivation, and between 1891 and 1901 the area settled at full rates, excluding land held by planters, increased by 56 per cent. Little attempt has, however, been made to introduce new crops or to improve upon old methods. The harvests are regular, the cultivators fairly well-to-do, and agricultural loans are hardly ever made by Government. The heavy rainfall renders it unnecessary to have recourse to artificial irrigation.

The native cattle are of very poor quality, with the exception of buffaloes, which are fine animals. The inferior character of the live-stock is chiefly due to neglect, and to disregard of the most elementary rules of breeding, as there is still abundance of waste land suitable for

grazing, and in few places is any difficulty experienced in obtaining pasture.

Forests.

The 'reserved' forests of Lakhimpur covered an area of 340 square miles in 1903-4. The largest Reserves are the Upper Dihing near Mārgheritā, and the Dibru near Rangāgorā on the Dibru river. The wants of the District are, however, fully supplied from the Government waste lands, which cover an area of 3,062 square miles; and as there is no external trade in timber, the out-turn from the Reserves has hitherto been insignificant. The most valuable timber trees are *nahor* (*Mesua ferrea*), *ajhar* (*Lagerstroemia Flos Reginae*), *makai* (*Shorea assamica*), and *bola* (*Morus laevigata*); but the largest trade is done in *simul* (*Bombax malabaricum*), a soft wood much in request for tea boxes. The duty levied on rubber, whether collected within or beyond the frontier, is a valuable source of revenue, the receipts under this head having averaged nearly a quarter of a lakh during the decade ending 1901. A considerable sum is also paid for the right to cut cane in Government forests.

Minerals.

The hills to the south contain two important coal-fields, those of Mākum and Jaipur. The Mākum field is extensively worked near MĀRGHERITĀ, the out-turn in 1903 amounting to 239,000 tons, on which a royalty of Rs. 36,000 was paid to Government. Petroleum oil is found in the same strata, and a large refinery has been constructed near the wells at DIGBOI. The Government revenue from oil in 1903-4 was Rs. 3,750. The coal measures also contain salt springs, and ironstone and iron ore in the form of impure limonite, from which iron used to be extracted in the days of native rule. Boulders of limestone are found in the bed of the Brahmaputra near Sadiyā, and there is a thick deposit of kaolin near the Brahmakund. Under the Ahom Rājās the gold-washing industry was carried on in most of the rivers; but this gold is probably doubly derivative, and is washed out of the Tertiary sandstones of the sub-Himālayan formations, which are themselves the result of the denudation of the rocks in the interior of the chain. A considerable sum of money was expended in 1894 on the exploration of the Lakhimpur rivers, but gold was not found anywhere in paying quantities, and no return was obtained on the capital invested.

Trade and communications.

Apart from tea, oil, and saw-mills, and the pottery and workshops of the Assam Railways and Trading Company, local manufactures are of little importance. The Assamese weave cotton and silk cloth, but more for home use than for sale. Brass vessels are produced in small quantities by the Moriās, a class of degraded Muhammadans, but the supply is not equal to the demand. Jewellery is made, but only as a rule to order, by the Brittial Baniyās. The raw molasses produced from sugar-cane

is of an excellent quality, and finds a ready sale, but the trade has not yet assumed any considerable dimensions. There is a large oil refinery at DIGBOI, and brick and pottery works have been opened at Ledo near Mārgheritā. In 1904 there were four saw-mills in the District, employing 743 hands. The largest mills were situated at Sisi, and the greater part of the out-turn consists of tea boxes.

Till recently, the Brahmaputra was the sole channel of external trade, but the completion of the Assam-Bengal Railway has provided through land communication with Chittagong and Gauhāti. The bulk of the external trade of the District is carried on with Calcutta. The chief exports are tea, coal, kerosene and other oils, wax and candles, hides, canes, and rubber. The imports include rice, gram, and other kinds of grain, *ghī*, sugar, tobacco, salt, piece-goods, mustard and other oils, corrugated iron, machinery, and hardware. The trade of the District is almost entirely in the hands of the Kayahs, as the Mārwāri merchants are called; but in the larger centres a few shops for the sale of furniture and haberdashery are kept by Muhammadans from Bengal. These centres are DIBRUGARH, the head-quarters town, SADIYĀ, DUM DUMĀ, Mārgheritā, JAIPUR, Khowāng, and North Lakhimpur; but the Kayahs' shops are scattered all over the District, and numerous weekly markets are held, at which the cultivators can dispose of their surplus products and the coolies satisfy their wants. Most of the frontier trade is transacted at Sadiyā and North Lakhimpur, and is chiefly carried on by barter. The principal imports are rubber, ivory, wax, and musk.

A daily service of passenger steamers and a fine fleet of cargo boats, owned and managed by the India General Steam Navigation Company and the Rivers Steam Navigation Company, ply on the Brahmaputra between Goalundo and Dibrugarh. Feeder steamers also go up the Subansirī to Bordeobām. South of the Brahmaputra, Lakhimpur is well supplied with means of communication. A metre-gauge railway runs from Dibrugarh *ghāt* to the Ledo coal-mines, a distance of 62 miles, with a branch 16 miles long from Mākum junction to Tālāp. This line taps nearly all the important tea gardens, and at Tinsukiā meets the Assam-Bengal Railway, and thus connects Dibrugarh with Gauhāti, and with the sea at Chittagong. In addition to the railway, there were in the District, in 1903-4, 20 miles of metalled and 211 miles of unmetalled road maintained by the Public Works department, and 6 miles of metalled and 516 miles of unmetalled roads kept up by the local boards. The most important thoroughfares are the trunk road, which runs from the Dihing river to Sadiyā, a distance of 86 miles, and the road from Dibrugarh to Jaipur. On the north bank of the Brahmaputra population is comparatively sparse, the rainfall is very heavy, and travelling during the rains is difficult.

Most of the minor streams are bridged, but ferries still ply on the large rivers.

Famine. Famine or scarcity has not been known in Lakhimpur since it came under British rule, but prices usually range high, as the District does not produce enough grain to feed the large immigrant population.

Administration. There are two subdivisions: DIBRUGARH, which is under the immediate charge of the Deputy-Commissioner; and NORTH LAKHIMPUR, which is usually entrusted to a European Magistrate. The ordinary District staff includes three Assistant Magistrates, one of whom is stationed at North Lakhimpur, and a forest officer. The Sadiyā frontier tract in the north-east corner is in charge of an Assistant Political officer. The Criminal Procedure Code is not in force in this tract, which is excluded from the jurisdiction of the High Court, and the Deputy-Commissioner exercises powers of life and death, subject to confirmation by the Chief Commissioner.

The Deputy-Commissioner has the powers of a Sub-Judge, and the Assistant Magistrates exercise jurisdiction as Munsifs. Appeals, both civil and criminal, lie to the Judge of the Assam Valley, but the chief appellate authority is the High Court at Calcutta. The people are as a whole law-abiding, and there is little serious crime. Special rules are in force for the administration of justice in the Sadiyā frontier tract.

The land revenue system resembles that in force in the rest of Assam proper. The settlement is *ryotwāri*, being made direct with the actual cultivators of the soil, and is liable to periodical revision. The District contains large tracts of waste land, and the settled area of 1903–4 was only 15 per cent. of the total, including rivers, swamps, and hills. Villagers are allowed to resign their holdings and take up new plots of land on giving notice to the revenue authorities, and in 1903–4 nearly 14,000 acres of land were so resigned and 25,000 acres of new land taken up. Fresh leases are issued every year for this shifting cultivation, and a large staff of *mandals* is maintained to measure new land, test applications for relinquishment, and keep the record up to date. Like the rest of Assam proper, the District was last resettled in 1893. The average assessment per settled acre assessed at full rates in 1903–4 was fixed at Rs. 2–7–4 (maximum Rs. 4–2, minimum Rs. 1–11).

The table below shows the revenue from land and total revenue, in thousands of rupees:—

	1880–1.	1890–1.	1900–1.	1903–4.
Land revenue . .	1,90	2,59	5,30	5,88
Total revenue . .	7,98*	11,00	18,03	19,21

* Exclusive of forest revenue.

Outside the municipality of Dibrugarh, the local affairs of each subdivision are managed by a board presided over by the Deputy-Commissioner or the Subdivisional Officer. The European non-official members of these boards, elected by the planting community, give valuable aid to the administration. The total expenditure in 1903-4 amounted to Rs. 1,31,000, more than half of which was laid out on public works. Less than one-third of the income is derived from local rates, which are supplemented by a large grant from Provincial revenues. The District is in a comparatively advanced state of development, but the population is so scanty that it is impossible to provide entirely for local requirements out of local taxation.

For the purposes of the prevention and detection of crime, the District is divided into ten investigating centres, and the civil police force consisted in 1904 of 29 officers and 154 men. There are no rural police, their duties being discharged by the village headmen. The military police battalion stationed in the District has a sanctioned strength of 91 officers and 756 men; but it supplies detachments for duty in Darrang and Sibsāgar, besides holding sixteen outposts in Lakhimpur. In addition to the District jail at Dibrugarh, a subsidiary jail is maintained at North Lakhimpur, with accommodation for 30 males and 3 females.

As far as literacy is concerned, Lakhimpur is a little in advance of most of the Districts of the Assam Valley. The number of children at school in 1880-1, 1890-1, 1900-1, and 1903-4 was 2,271, 2,998, 5,501, and 5,219 respectively. The number of pupils in 1903-4 was nearly treble the number twenty-nine years before, but the proportion they bore to the total population was less than in the earlier year. This result is, however, largely due to the influx of illiterate coolies, and there can be little doubt that education has spread among the indigenous inhabitants. At the Census of 1901, 3·5 per cent. of the population (6·2 males and 0·5 females) were returned as able to read and write. There were 166 primary, 9 secondary, and 2 special schools in the District in 1903-4. The number of female scholars was 143. A large majority of the pupils under instruction were only in primary classes, and the number of girls attending secondary schools was extremely small. Of the male population of school-going age 13 per cent. were in the primary stage of instruction, and of the female population of the same age less than one per cent. The total expenditure on education in 1903-4 was Rs. 80,000, of which Rs. 13,000 was derived from fees. About 22 per cent. of the direct expenditure was devoted to primary schools.

The District possesses 2 hospitals and 6 dispensaries, with accommodation for 107 in-patients. In 1904 the number of cases treated was 72,000, of whom 1,200 were in-patients, and 1,100 operations were

performed. The expenditure in the same year was Rs. 16,000, the greater part of which was met from Local and municipal funds.

In 1903-4, 39 per 1,000 of the population were successfully vaccinated, which was rather below the proportion for Assam as a whole. Vaccination is compulsory only in Dibrugarh town.

[Sir W. W. Hunter, *A Statistical Account of Assam*, vol. i (1879); A. Mackenzie, *History of the Relations of the Government with the Hill Tribes of the North-East Frontier of Bengal* (Calcutta, 1884); B. C. Allen, *District Gazetteer of Lakhimpur* (1905).]

Lakhimpur, North.—Subdivision of Lakhimpur District, Eastern Bengal and Assam, lying between 26° 49′ and 27° 33′ N. and 93° 46′ and 94° 41′ E., with an area of 1,275 square miles. On the north it is bounded by the Himālayas; on the south it is separated by the Subansirī and the Kherkutiā channel of the Brahmaputra from Sibsāgar District; on the west it adjoins Darrang. The population in 1901 was 84,824, or 34 per cent. more than in 1891 (63,434). Much of the country is covered with forest or high grass jungle, and in 1901 the density was only 67 persons per square mile. The subdivision contains 13 tea gardens, which in 1904 had 9,081 acres under plant and gave employment to 24 Europeans and 11,179 natives. The annual rainfall at North Lakhimpur averages 128 inches, but close to the hills it is nearly 170 inches. The subdivision contains 323 villages. The head-quarters of the magistrate are situated at North Lakhimpur, where there are a small jail, a hospital with nine beds, and a bazar where a certain amount of trade is done with the tribes inhabiting the lower ranges of the Himālayas. Communications with the outer world are difficult, as the road to the Brahmaputra, which is more than 30 miles in length, is liable to be breached by flood. The assessment for land revenue and local rates in 1903-4 amounted to Rs. 1,73,000.

Lakhīmpur Tahsīl.—Central *tahsīl* of Kherī District, United Provinces, comprising the *parganas* of Bhūr, Srīnagar, Kukrā Mailānī, Pailā, and Kherī, and lying between 27° 47′ and 28° 30′ N. and 80° 18′ and 81° 1′ E., with an area of 1,075 square miles. Population increased from 365,622 in 1891 to 366,326 in 1901. There are 666 villages and two towns: LAKHĪMPUR (population, 10,110), the District and *tahsīl* head-quarters, and KHERĪ (6,223). The demand for land revenue in 1903-4 was Rs. 4,09,000, and for cesses Rs. 68,000. The density of population, 340 persons per square mile, is above the District average. Through the centre of the *tahsīl* flows the Ul, which divides it into two distinct portions. The area to the north-east, stretching up to the Sārdā or Chaukā, is a damp low-lying tract, liable to inundations from the rivers. South-west of the Ul the soil is a rich loam and agriculture is more stable. In the north of the

tahsīl 150 square miles are occupied by forest. In 1903–4 the area under cultivation was 529 square miles, of which 76 were irrigated. Wells supply more than half the irrigated area, but tanks or *jhīls* are of greater importance than in other *tahsīls* of this District.

Lakhīmpur Town.—Head-quarters of the Lakhīmpur *tahsīl* and of Kherī District, United Provinces, situated in 27° 57′ N. and 80° 47′ E., on the Lucknow-Bareilly State Railway. Population (1901), 10,110. The town stands near the high southern bank of the Ul in a picturesque situation. It was a place of no importance till its selection as the District head-quarters in 1859; but it has grown rapidly, and is now the chief trading centre. There is a large export of grain and sugar, and a market is held daily. Lakhīmpur contains the usual offices, and also the head-quarters of the American Methodist Mission in the District and a dispensary. It was constituted a municipality in 1868. During the ten years ending 1901 the income and expenditure averaged Rs. 13,400. In 1903–4 the income was Rs. 19,000, chiefly derived from taxes on houses and professions and from rents; and the expenditure was Rs. 21,000. These figures include a grant of Rs. 3,500 from Provincial revenues for sanitary purposes. There are five schools for boys with 290 pupils and two for girls with 50.

Lakhisarai.—Village and railway station in Monghyr District, Bengal. *See* LUCKEESARAI.

Lakhnādon.—Northern *tahsīl* of Seonī District, Central Provinces, lying between 22° 18′ and 22° 57′ N. and 79° 19′ and 80° 17′ E., with an area of 1,358 square miles. The population decreased from 151,483 in 1891 to 135,345 in 1901. The density in the latter year was 87 persons per square mile. The *tahsīl* contains 712 villages, but no town. The head-quarters are at Lakhnādon, a village of 2,148 inhabitants, distant 38 miles from Seonī. Excluding 360 square miles of Government forest, 59 per cent. of the available area is occupied for cultivation. The cultivated area in 1903–4 was 663 square miles. The demand for land revenue in the same year was Rs. 1,11,000, and for cesses Rs. 12,000. The most fertile portions of the *tahsīl* are an open plain to the east towards Mandlā and a small tract on the banks of the Narbadā in the north. The remainder consists of the succession of ridges and valleys characteristic of the Sātpurā country.

Lakhsetipet.—*Tāluk* in Adilābād District, Hyderābād State, with an area of 499 square miles. The population in 1901, including *jāgīrs*, was 50,835, compared with 52,589 in 1891, the decrease being due to famine and cholera. The *tāluk* contains 123 villages, of which 9 are *jāgīr*; and Lakhsetipet (population, 1,438), on the left bank of the Godāvari is the head-quarters. The land revenue in 1901 was

Rs. 69,000. Extensive rice cultivation is carried on with irrigation from tanks and wells.

Lakhtar (Thān-Lakhtar).—State in the Kāthiāwār Political Agency, Bombay, lying between 22° 49′ and 23° N. and 71° 46′ and 72° 3′ E., with an area of 248 square miles. The population in 1901 was 15,114, residing in 51 villages. The revenue in 1903-4 amounted to Rs. 70,250.

The State consists of two distinct portions, Thān and Lakhtar, together with some outlying villages in Ahmadābād District. There are some rocky tracts, but neither rivers nor hills of any size. About 48 square miles were under cultivation in 1903-4, of which 1½ square miles were irrigated. Cotton and the usual grains are grown. The potters (Botiers) of Thān enjoy a wide reputation for the excellence of their work. Lakhtar ranks as a third-class State in Kāthiāwār. The Lakhtar *tāluka* was granted by the Dhrāngadhra State to Abhaisinghjī, son of Rāj Sāhib Chandrasinghjī of Halavad. He conquered Thān and the surrounding country from the Bābriās in about 1604-15. The present chief is descended from this family. His title is Thākur of Lakhtar.

Laki.—Mountain range in the Kotri *tāluka* of Karāchi District, Sind, Bombay. *See* LAKHI.

Lakki.—Head-quarters of the Marwat *tahsīl*, Bannu District, North-West Frontier Province, situated in 32° 36′ N. and 70° 56′ E. Population (1901), 5,218. In 1844 Fateh Khān Tiwānā, the revenue collector of the Sikh government, built and garrisoned a fort in the heart of Marwat which he called Ihsānpur. A town grew up under its walls and became the capital of Marwat until 1864, when the site was abandoned and the inhabitants removed to Lakki on the right bank of the Gambīla. The municipality was constituted in 1874. The income during the ten years ending 1902-3 averaged Rs. 5,200, and the expenditure Rs. 5,300. In 1903-4 the income was Rs. 5,500, chiefly derived from octroi; and the expenditure was Rs. 5,100. The town has a dispensary and a vernacular middle school maintained by the municipality.

Lakkundi.—Place of antiquarian interest in the Gadag *tāluka* of Dhārwār District, Bombay, situated in 15° 23′ N. and 75° 43′ E., 7 miles south-east of Gadag town. Population (1901), 4,454. It contains fifty temples and thirty-five inscriptions. The temples are ascribed to Jakhanāchārya. They suffered severely in the Chola invasion about 1070, but were afterwards rebuilt. The finest and most remarkable is the temple of Kāshivishveshwar. There are numerous step-wells. Of the thirty-five inscriptions, the earliest deciphered is dated A.D. 868. In 1192 the Hoysala king Ballāla II, better known as Vīra Ballāla (1192-1211), established his capital at

Lakkundi, then styled Lokkigundi, and in the vicinity met and defeated the forces of the Deogiri Yādava Bhillam, commanded by the latter's son Jaitugi. Lakkundi contains a school.

Lākshām.—Village in the head-quarters subdivision of Tippera District, Eastern Bengal and Assam, situated in 23° 15′ N. and 91° 8′ E. It is a railway junction, where the branch lines to Chāndpur and Noākhāli leave the main line of the Assam-Bengal Railway.

Lakshmantīrtha.—Tributary of the Cauvery in Mysore. It rises in Brahmagiri, on the southern frontier of Coorg, and runs north-east through the Hunsūr *tāluk* of Mysore District into the Cauvery, beyond Sāgarkatte, at the common boundary of the Mysore and Yedatore *tāluks*, after a course of about 70 miles. It is a perennial stream, with seven dams in Mysore, from which are drawn channels 133 miles in length, irrigating nearly 8,000 acres.

Lakshmeshwar.—Head-quarters of a subdivision of the same name in the Mirāj State, Bombay, situated in 15° 7′ N. and 75° 31′ E., about 40 miles south-east of Dhārwār. Population (1901), 12,860. Weaving of cotton cloth is largely carried on. There are temples of Someshwar and Lakshmiling about a thousand years old, Jain *bastis*, and a Musalmān mosque about four hundred years old. In honour of the god Someshwar a fair, attended by about 5,000 people, is held yearly on the tenth of the bright half of Vaishākh (May–June). About fifty inscriptions have been found referring to the early dynasties ruling in this part of the country. The town is administered as a municipality with an income in 1903–4 of Rs. 7,300.

Lakshmīpāsa.—Village in the Narāl subdivision of Jessore District, Bengal, situated in 23° 11′ N. and 89° 39′ E., on the right bank of the Nabagangā river, where it joins the Bānkāna 10 miles east of Narāl. It is the home of a well-known colony of Kulin Brāhmans; they trace their origin to Rāmānanda Chakrabartti, who emigrated from Sarmangal near Kāila in Backergunge, a great Kulin settlement.

Lakshmīpur.—Village in the head-quarters subdivision of Noākhāli District, Eastern Bengal and Assam, situated in 22° 57′ N. and 90° 51′ E. Population (1901), 4,794. In 1756 a cloth factory was established here by the East India Company. It is still a busy trade mart.

Lakshmīsarai.—Village and railway station in Monghyr District, Bengal. *See* LUCKEESARAI.

Lakvalli.—Village in the Tarikere *tāluk* of Kadūr District, Mysore, situated in 13° 42′ N. and 75° 38′ E., on the Bhadra river, 13 miles from Tarikere railway station. Population (1901), 1,196. West of it are vast forests on each side of the Bhadra, containing some of the most valuable teak timber in the country. Close by is the site of

Ratnapuri, the ancient capital of Vajra Makuta Rāya. Subsequently included in the Humcha and Ganga territories, it afterwards formed part of the Hoysala and Vijayanagar kingdoms. The chiefs of Tarikere acquired it later, but were forced to yield it to Bednūr, the conquest of which by Haidar Alī in 1763 led to the absorption of the country into Mysore.

Lāla Mūsa.—Junction of the Sind-Sāgar branch of the North-Western Railway with the main line, situated in 32° 38′ N. and 74° 1′ E., in the Khāriān *tahsīl* of Gujrāt District, Punjab. Population (1901), 547.

Lālbāgh Subdivision. — Central subdivision of Murshidābād District, Bengal, lying between 24° 6′ and 24° 23′ N. and 87° 59′ and 88° 30′ E., with an area of 370 square miles. The subdivision is divided almost equally by the Bhāgīrathi, flowing from north to south; the eastern portion is an alluvial flat, while the western portion is high and undulating. The population in 1901 was 192,978, compared with 181,726 in 1891, the density being 522 persons per square mile. It contains two towns—MURSHIDĀBĀD (population, 15,168) and AZĪMGANJ (13,385)—and 632 villages.

Lālbāgh Town.—Official name for the town of MURSHIDĀBĀD, Murshidābād District, Bengal; the head-quarters of the Lālbāgh subdivision.

Lālganj.—Town in the Hājīpur subdivision of Muzaffarpur District, Bengal, situated in 25° 52′ N. and 85° 10′ E., on the east bank of the Gandak, 12 miles north-west of Hājīpur town. Population (1901), 11,502. Lālganj is an important river mart, the principal exports being hides, oilseeds, and saltpetre, and the imports food-grains (chiefly rice), salt, and piece-goods. The bazar lies on the low land adjoining the river, but is protected from inundation by the Gandak embankments. The shipping *ghāt* lies a mile to the south of the town, which is connected by road with Sāhibganj, Muzaffarpur, and Hājīpur. Lālganj was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 5,600, and the expenditure Rs. 4,700. In 1903–4 the income was Rs. 6,500, mainly from a tax on houses and lands; and the expenditure was Rs. 6,000.

Lālgarh.—*Thakurāt* in the MĀLWĀ AGENCY, Central India.

Laling.—Ruined hill fort in West Khāndesh District, Bombay, situated in 20° 49′ N. and 74° 45′ E., 6 miles south of Dhūlia. The fact that this, and not Thālner, was granted to his eldest son, would seem to show that Laling was the chief fort of Malik Rājā (1370–99), the first of the Fārūki kings; and here in 1437 Nasīr Khān and his son Mīrān Adil Khān were besieged by the Bahmani general till relieved by the advance of an army from Gujarāt. Early in the seventeenth century (1629–31) the fort is more than once mentioned in connexion

with the movements of the Mughal troops in their campaigns against the Deccan. Besides the fort, there are two small Hemādpanti shrines and a square Hemādpanti well.

Lalitpur Subdivision.—Subdivision of Jhānsi District, United Provinces, comprising the LALITPUR and MAHRONĪ *tahsīls*.

Lalitpur Tahsīl.—*Tahsīl* of Jhānsi District, United Provinces, comprising the *parganas* of Lalitpur, Bānsī, Tālbahat, and Bālābahat, and lying between 24° 16′ and 25° 12′ N. and 78° 10′ and 78° 40′ E., with an area of 1,058 square miles. Population fell from 157,153 in 1891 to 144,638 in 1901. There are 368 villages and two towns: LALITPUR (population, 11,560), the *tahsīl* head-quarters, and TĀLBAHAT (5,693). The demand for land revenue in 1903–4 was Rs. 80,000, and for cesses Rs. 16,000. The density of population, 137 persons per square mile, is below the District average. Lalitpur is bounded on the west and north-west by the Betwā. In the south lie the outer scarps of the Vindhyan plateau, while gneiss hills crop up in the north. The space between is largely occupied by black soil, which gradually changes in the north to a thin red, and there is a little alluvium along the Betwā. The black soil has for some years been in a poor state owing to the spread of *kāns* (*Saccharum spontaneum*), but the red soil is fairly protected by well-irrigation. In 1903–4 the area under cultivation was 244 square miles, of which 38 were irrigated, almost entirely from wells.

Lalitpur Town.—Head-quarters of the subdivision and *tahsīl* of the same name in Jhānsi District, United Provinces, situated in 24° 42′ N. and 78° 28′ E., on the Great Indian Peninsula Railway and on the Cawnpore-Saugor road. Population (1901), 11,560. Tradition ascribes the founding of the town to Lalitā, wife of a Rājā Sumer Singh, who came from the Deccan. It was taken from the Gonds early in the sixteenth century by Govind Bundelā and his son, Rudra Pratāp. A hundred years later it was included in the Bundelā State of Chanderī. About 1800 an indecisive battle was fought close by between the Bundelās and Marāthās; and in 1812 it became the head-quarters of Colonel Baptiste, who was appointed by Sindhia to manage Chanderī. On the formation of a British District of Chanderī in 1844, Lalitpur became the head-quarters, and it remained the capital of the District, to which it gave its name in 1861, up to 1891, when Lalitpur and Jhānsi Districts were united. The story of the Mutiny at Lalitpur has been narrated in the history of JHĀNSI DISTRICT. The town contains a number of Hindu and Jain temples, some of which are very picturesque. A small building, open on three sides save for a balustrade, and supported on finely-carved columns, obviously derived from a Chandel building, bears an inscription of Fīroz Shāh Tughlak, dated 1358. Lalitpur is the

head-quarters of a Joint-Magistrate and of a Deputy-Collector, and also contains a dispensary and a branch of the American Mission with an orphanage. It has been a municipality since 1870, but is one of the few towns in the United Provinces where none of the municipal commissioners is elected. During the ten years ending 1901 the income and expenditure averaged Rs. 15,000 and Rs. 13,000 respectively. In 1903-4 the income was Rs. 19,000, chiefly derived from octroi (Rs. 11,000) and from rents and fees (Rs. 6,000); and the expenditure was Rs. 21,000. Lalitpur has a large and increasing export of oilseeds, hides, and *ghī*, besides a considerable road traffic with the neighbouring Native States. Large quantities of dried beef are exported to Rangoon. There are four schools with 247 pupils, including 25 girls.

Laliyād.—Petty State in KĀTHIĀWĀR, Bombay.

Lālsot.—Head-quarters of the *tahsīl* of the same name in the Daosa *nizāmat* of the State of Jaipur, Rājputāna, situated in 26° 35′ N. and 76° 21′ E., in a cleft in a long range of hills about 40 miles south-east of Jaipur city, and 24 miles south of the town of Daosa, with which it is connected by a road for the most part metalled. Population (1901), 8,131. There are three schools attended by 140 boys, and a hospital with accommodation for 4 in-patients. About 1787 a battle, more commonly known as that of Tonga, was fought here, the combined troops of Jaipur and Jodhpur defeating the Marāthās under De Boigne.

Lambāgraon.—Estate in Kāngra District, Punjab, with an area of 125 square miles. The present holder, Rājā Jai Chand, is a descendant of the ancient Katoch kings of Kāngra. On the annexation of that District, Ludar Chand, a nephew of the famous Rājā Sansār Chand, was confirmed in his *jāgīr*; and in 1851, on the death of Sansār Chand's grandson Parmodh Singh, Partāb Chand, the eldest son of Ludar Chand, was acknowledged as head of the Katoch family and received the title of Rājā. The *jāgīr* has descended by primogeniture to the present Rājā, who is an honorary magistrate and Munsif in his *jāgīr*, and a major in the 37th Dogras. In 1904 he was nominated a member of the Punjab Legislative Council. His *jāgīr* consists of 20 villages and brings in about Rs. 40,000 a year.

Landi Khāna.—Post in the KHYBER Pass, North-West Frontier Province.

Landi Kotal.—Post in the Khyber Pass, North-West Frontier Province, situated in 34° 6′ N. and 71° 8′ E., and the westernmost point on that route occupied by the British Government. The *kotal* or pass crosses a small subsidiary watershed 3,600 feet above sea-level, and thence descends to the frontier of Afghānistān near Landi Khāna. In August, 1897, the post was attacked by the Afrīdis and carried, despite

a stubborn defence by the Khyber Rifles. The fort is of the ordinary type, consisting of a keep and an outer fort with accommodation for 5 British officers and 500 native officers and men. Since 1899 it, like the other posts in the Khyber, has been garrisoned by the Khyber Rifles, an irregular corps of militia recruited from the tribes of the Khyber Agency.

Landour (*Landhaur*).—Hill cantonment and sanitarium in Dehra Dūn District, United Provinces, situated in 30° 27′ N. and 78° 7′ E. Population in the cold season (1901), 1,720. In September, 1900, the population was 3,711, of whom 1,516 were Christians. A convalescent station for European soldiers was established in 1827, the year after the foundation of MUSSOORIE, which adjoins Landour. The cantonment contains a large school for Europeans and Eurasians, with college classes.

Langai.—River of Assam, which rises in the hills to the south of Sylhet District, and flows north to within a few miles of Karīmganj town. Here it turns to the south-west and finally disappears in the Hākāluki *haor* (depression). During the rainy season it is connected with the Kusiyārā branch of the Surmā river, near Karīmganj, by a channel called the Natiākhāl. On entering Sylhet, the river flows through a 'reserved' forest, part of which has recently been thrown open to cultivation, and then through low hilly country, planted out with tea, and from this point its banks are fringed with tea gardens and villages. There is little wheeled traffic in Sylhet, and the Langai is largely used as a trade route for forest produce, tea, rice, cotton, mustard, mats, and other country products. During the rainy season boats of 4 tons burden can proceed as far as Hāthikirā tea estate; in the cold season traffic is carried on in light vessels. The most important places on the banks of the Langai are Pāthārkāndi, Nilām Bāzār, Lātu, and Jaldhub. Its total length is 73 miles.

Lāngiong.—Petty State in the Khāsi Hills, Eastern Bengal and Assam. The population in 1901 was 596, and the gross revenue in 1903–4 was Rs. 120. The principal products are potatoes and millet.

Lāngrin.—Petty State in the Khāsi Hills, Eastern Bengal and Assam. The population in 1901 was 1,138, and the gross revenue in 1903–4 was Rs. 2,050. The principal products are rice and millet. Deposits of coal and lime have been found in the State, but only the latter is worked.

Lansdowne.—Cantonment in Garhwāl District, United Provinces, situated in 29° 52′ N. and 78° 41′ E., on a ridge of the Outer Himālayas, 5,500 to 6,600 feet above sea-level. A cart-road from Kotdwāra railway station, 19 miles away, has recently been constructed. Population (1901), 3,943. The cantonment was founded in 1887. It extends

through beautiful pine and oak forests for a distance of more than three miles, and can accommodate three battalions of native troops. Lansdowne is also the head-quarters of the Ganges Forest division, and of a Deputy-Collector belonging to the District staff. During the ten years ending 1901 the income and expenditure of the cantonment fund averaged Rs. 7,500. In 1903-4 the income was Rs. 11,900, and the expenditure Rs. 12,600.

Lār.—Town in the Deoria *tahsīl* of Gorakhpur District, United Provinces, situated in 26° 12′ N. and 83° 59′ E., 2 miles from a station on the Bengal and North-Western Railway. Population (1901), 7,305. It contains a few mosques, and is a considerable trading centre for the export of local produce. The town school has 160 pupils.

Larkā Kol.—Tribe of Bengal. *See* Ho.

Lārkāna District.—District in Sind, Bombay, lying between 25° 53′ and 28° N. and 67° 11′ and 68° 33′ E., with an area of 5,091 square miles. The District is bounded on the north by Sukkur and Upper Sind Frontier Districts; on the east by the river Indus, which separates it from Sukkur District, the Khairpur State, and Hyderābād District; on the south by Karāchi District; and on the west by the territory of the Khān of Kalāt, the Kīrthar range of mountains and the Pab mountains forming a natural line of demarcation on that side. The name is derived from the tribe of Larak or Ladak, which once resided in the Lārkāna subdivision and is found in Kāthiāwār at the present day.

Physical aspects.

With the exception of the western portion, which is mountainous, the general aspect is that of a flat plain, intersected by canals. The southern portion (Sehwān subdivision) differs in some respects from the remainder, in being more hilly and possessing the only lake of importance in Sind, known as the MANCHHAR. Patches of *kalar* or salt soil are met with in different parts of the District. Many of the peaks of the Kīrthar range are lofty, one of them, known as the Kutta-jo-Kabar ('dog's tomb'), attaining an altitude of 6,200 feet. For the rest, Lārkāna does not differ in appearance from other parts of Sind. Of the hills in the southern portion of the District, the most conspicuous are the LAKHI range and the Jatil hills running just outside the boundary south-west from Sehwān to Duba. The latter are steep and of considerable height, probably in few places less than 2,000 feet. The Western Nāra, which is a natural river artificially improved, is the largest canal in the District. The portions of the District lying between this canal and the Indus or the Ghār Canal are one dead flat of rich alluvial soil, well cultivated and, on the whole, thickly populated. Hill torrents or *nais* are frequent. The principal is Nai-Gāj, which takes its rise in Baluchistān and enters the District south of the Danna Towers.

It usually rises in flood once or twice in the year. The Irak river, rising in the Hathul hills between Karāchi and Sehwān, after a south-easterly course of 40 miles, falls into the Kinjhar lake, while the Aral is one of the main channels by which the waters of the Manchhar lake are discharged into the Indus. Other hill-streams are insignificant and rarely hold water.

It is only in the Kīrthar range, forming the frontier between Sind and Baluchistān, that Lārkāna contains any rocks older than recent, the remainder of the area being occupied by Indus alluvium. The Kīrthar range consists of the following series: Manchhar beds, corresponding with the strata known elsewhere as Siwāliks, which are of middle and upper miocene age; the Gāj group, marine beds of lower to middle miocene age, named after the Gāj river in this District; the Upper Nāri, or oligocene; the Lower Nāri, highly fossiliferous Nummulitic strata of the upper eocene; the Kīrthar Nummulitic limestone, middle eocene, corresponding with the Spīntangi limestone of Baluchistān. On the western side of the range, beyond the frontier, this limestone is underlaid by a thickness of several thousand feet of shaly beds corresponding with the Ghāzij and Khojak shales of Baluchistān. A spring of sulphurous water at Lakhi, having a temperature ranging from 102° to 124°, flows from the base of a calcareous precipice, 600 feet high, known as the Dhāra hill. The spring, popularly known as the Dhāra Tīrth, is much frequented by persons suffering from skin diseases and rheumatism. Recently it has been cleared, and bathing cisterns have been erected for the convenience of visitors.

The vegetation is mainly tamarisk, which attains a fair size and is much used by the inhabitants for firewood. The other important trees are the *nīm*, *babūl*, and *pīpal*. The *ak*, the fibre of which is also used for nets and the smaller kind of ropes, is common in the plains. The mango, plantain, lime, and pomegranate are grown extensively. Groves of date-palms are met with in Kambar and Lārkāna on the banks of canals, and in rice land; and the wild olive, almond, and medlar trees abound in the hills.

Wild animals include leopards, black bears, hog, antelope, ibex, hog deer, hyenas, jackals, wolves, foxes, and porcupines. Wild sheep and badgers are also found. Among birds, there are many varieties of duck, the *tilūr*, partridge, geese, swans, flamingoes, herons, sand-grouse, snipe, and quail, and water-fowl of various kinds.

The climate of the two northern subdivisions does not materially differ from the rest of Upper Sind. In the Sehwān subdivision the heat is greatest in the northern area, where the proximity of the Lakhi range, devoid of vegetation and radiating heat, causes a perceptible increase in the temperature of the adjacent country.

The average annual maximum and minimum temperatures are 115° and 43° respectively[1].

The average annual rainfall in the Lārkāna and Mehar subdivisions is estimated at 3 and 2 inches. The fall is somewhat heavier in Sehwān, where it generally averages between 6 and 9 inches. During the hot season, the prevailing wind is from the south; in the cold season it is from the north and east, and is at times piercingly cold and cutting. During March, dust-storms are frequent with high winds and occasional showers of rain, while fierce hot winds called *lūh* blow in May and June, often lasting far into the night. They are fiercest in the forty days succeeding April 15, which are called the *chalīho.*

The Lārkāna subdivision is subject to floods or *lets*, which at times cause great destruction to life and property. In 1874, before the construction of the Kashmor embankment, the *let*, starting from the town of the same name in the Frontier District, conjointly with the Jhali *let*, originating in the Sukkur and Shikārpur subdivisions, inundated nearly 100,000 acres of waste and cultivated land, besides destroying portions of 53 villages. Strong embankments have been raised to stop these overflows, and the evil has been greatly reduced. Mehar is subject also to frequent floods from the Western Nāra.

The history of Lārkāna can be gathered from the articles on SUKKUR and KARĀCHI DISTRICTS, of which it formed a part until 1901.

History.

In the feuds which led to the expulsion of the Kalhora dynasty, a large portion of the District was conferred on a Brāhui chieftain in compensation for the murder of a tribesman, but was subsequently resumed by the Tālpurs. The Brāhuis are still numerously represented. After the battle with Shāh Shujā, the Lārkāna subdivision was divided between the Tālpur Mīrs, from whom it passed to the British on the annexation of Sind.

Among the few antiquities of the District are the tombs of Shāh Bahārah, at Lārkāna town, and of Shāhal Muhammad Kalhora, at Fatehpur. SEHWĀN has a fort ascribed to Alexander the Great, and a fine tomb of Lāl Shāhbāz, portions of which date from the fourteenth century. At Khudābād in the Dādū *tāluka*, once a flourishing town but now in ruins, are the tomb of Yār Muhammad Kalhora and an old Jāma Masjid adorned with some fine tile work.

Population.

According to the Census of 1901, the population of the District was 656,083. The population of the present area in 1891 was 594,896, the increase in ten years being 10 per cent. Statistics of the population in 1901 are given in the following table:—

[1] There is no meteorological station in the District, and the temperatures given are those recorded inside dispensaries. If taken under the usual conditions, the average maximum and minimum would be about 7° higher and lower respectively.

Tāluka.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Lārkāna . . .	267	1	72	100,827	378	+ 12	3,994
Labdarya . .	356	...	57	68,872	194	+ 10	605
Kambar . . .	627	1	92	88,527	141	+ 12	813
Rato-dero . .	325	1	80	72,312	222	+ 18	2,624
Mehar . . .	328	...	64	58,434	178	+ 21	627
Nasīrābād . .	417	...	65	56,544	135	+ 27	1,289
Kākar . . .	445	...	73	49,252	111	+ 3	1,052
Sehwān . . .	1,272	2	65	54,779	43	+ 2	1,435
Dādū . . .	294	...	53	55,318	188	− 0·02	1,519
Johi . . .	760	...	87	51,218	67	− 0·1	1,377
District total	5,091	5	708	656,083	129	+ 10	15,335

The District contains five towns: LĀRKĀNA, the head-quarters, SEHWĀN, KAMBAR, RATO-DERO, and BUBAK. Owing to its hilly tracts, the Sehwān *tāluka* is less densely populated than the rest of the District. Lārkāna is the most thickly populated. The language of the District is Sindī, which is spoken by 94 per cent. of the inhabitants. Distributing the population by religion, Musalmāns form 85 per cent. and Hindus 15 per cent.

The Musalmāns are chiefly Sindīs, Baluchis, and Brāhuis. The chief Baloch tribes are the Chandias (12,000), Rinds (37,000), Laghāris (7,000), and Jamālis (6,000); Sindīs include Abras (24,000) and Sammās (188,000); while Jats number 12,000. It is from the Chandia Baluchis that the Lārkāna subdivision formerly obtained the name of Chanduka or Chāndko. They are to be found in the west of the District, in the vicinity of the hills. The Jamālis reside on the borders of the desert, the Abras in the south-west of the Lārkāna subdivision; Jats are found dispersed all over the District, and are mainly cultivators and cattle-breeders. The Hindus are mostly Brāhmans and Lohānas, including Amils. As the District was formed after 1901, no statistics of occupation are available[1].

Of 115 Christians, 33 are natives, mostly Roman Catholics. There are no missions.

Agriculture.

Lārkāna contains one of the finest alluvial tracts in the whole of Sind, lying between the Indus, the Nāra, and the Ghār. There is, perhaps, no part of the province so admirably suited for irrigation; and the soil is so productive that it has procured for this tract the name of the 'garden of Sind.' The

[1] The agricultural population is roughly 500,000—of the rest about 8,000 are employed in petty industries, about 70,000 are traders, and the balance is made up of day-labourers, Government and railway clerks, and unemployed.

villages in the Ghāro *tappa* of the Mehar *tāluka* produce good rice; but floods from the Nāra are frequent and often prevent the cultivation of this crop. The Dādū and Sehwān *tālukas* contain the finest wheat land in the whole of Sind. Much cultivation is carried on in the neighbourhood of the Manchhar lake after the subsidence of the annual inundation.

The chief statistics of cultivation in 1903-4 are shown below, in square miles:—

Tāluka.	Total.	Cultivated.	Irrigated.	Cultivable waste.	Forests.
Lārkāna . .	263	189	156	27	3
Labdarya . .	325	145	101	44	53
Kambar . .	627	447	163	54	...
Rato-dero . .	321	173	129	47	11
Mehar . . .	327	187	123	81	6
Nasīrābād . .	417	209	116	81	...
Kākar . . .	444	210	95	217	...
Sehwān . . .	1,273	178	80	549	15
Dādū . . .	294	169	82	55	4
Johi . . .	760	326	48	301	...
Total	5,051*	2,233	1,093	1,456	92

* This differs from the area shown in the *Census Report* of 1901, being based on more recent information.

The staple food-grains are rice and wheat, the areas under which in 1903-4 were 435 and 218 square miles respectively. *Jowār* occupied 362 square miles. Excellent rice crops are produced in the Kambar *tāluka*, and rice has generally been more largely cultivated in the northern *tālukas* of recent years, owing to improvements in canal irrigation. Wheat is the most prominent crop of the Sehwān *tāluka*. Pulses occupied 228 square miles, the principal being *lang* (202 square miles). The area under sesamum and rapeseed in the same year was 66 square miles, and under cotton one square mile. Sugar-cane, tobacco, indigo, and a large variety of garden vegetables and fruits are grown, principally in the Lārkāna and Mehar *tālukas*. Since the District was formed, advances of 4 lakhs have been made to cultivators under the Land Improvement and Agriculturists' Loans Acts, of which 1·9 lakhs was advanced in 1903-4.

The domestic animals are the same as in other parts of Sind, the camel being the most useful. They are bred to a considerable extent in the south. Large numbers of *dumba* or fat-tailed sheep are pastured on the western hills. In Sehwān there are two varieties of sheep, of which one is remarkable for having four horns.

Of the total area cultivated, 1,093 square miles, or 49 per cent., were irrigated in 1903-4. The areas supplied from each source are: Government canals, 231 square miles; private canals, 757 square

miles; wells, 7 square miles; and other sources, 98 square miles. Of the numerous Government canals, the principal are: the Western Nāra (irrigating 457 square miles), Ghār (569 square miles), Sukkur (109 square miles), Phitta canals (9 square miles), Dādū canal (19 square miles), Aral canal (17 square miles), Pritchard canal (13 square miles), Marvi Wah (7 square miles), Nāra *bands* (7 square miles), Ghār *bands* (1 square mile), Wāhur Wah (5 square miles), Rāj Wah and Begāri canal (0·1 square mile). The Western Nāra, navigable by boats from May to September, is a river artificially improved. After flowing through the Lārkāna and Mehar subdivisions, it falls into the Manchhar lake. The Ghār, which is supposed also to be a natural channel, is very winding, broad, and deep, with level banks. It is largely used for boat traffic, and forms a great highway to Sukkur via the Indus, as also between Kambar and Lārkāna. Nearly all the canals obtain their supply from the Indus. Of smaller Government canals, the Shahajī Kur and Datejī Kur are the most important. They draw their supply from the Ghār canal. None of the *zamīndāri* canals is important. The Manchhar lake provides for the irrigation of a considerable area (25 square miles) in the Sehwān *tāluka*. Numerous hill torrents and rivers are utilized for irrigation in the Mehar subdivision.

The Government 'reserved' forests in Lārkāna cover an area of 92 square miles, chiefly situated in the Sehwān subdivision, and are administered by a Deputy-Conservator. These forests lie close to the Indus and were planted by the Tālpur chiefs as *shikārgāhrs* or shooting preserves. The revenue from forests, which amounts to over Rs. 15,000, is mainly derived from the sale of firewood and timber. With the exception of some good *babūl* plantations, the tree growth is small. In the hills of Sehwān, the *pis* or *pish*, a kind of dwarf-palm, is much used by the Brāhui tribes for manufacturing ropes, twine, sandals, mats, and baskets.

The principal minerals are coarse salt and saltpetre. Alum, sulphur, and mica occur in the hills to the west, but are not worked.

Trade and communications.

The manufactures include coarse cotton cloth, carpets, rugs, mats, salt, metal-work, shoes, native saddles, and other leathern goods; dyeing is also an important industry. Bubak is the chief centre of carpet-manufacture; but both carpets and saddle-bags, worked by Baloch and Brāhui women, are imported from Kalāt and sold in the Johi and Sehwān *tālukas*. Native saddles are manufactured in Lārkāna and cotton *lungīs* in Sehwān. There are altogether 33 rice-cleaning factories in the District, situated chiefly at Lārkāna town, Rato-dero, Kambar, and Nasīrābād. The District has an extensive trade, the exports comprising grain of sorts, wool, cotton, and other agricultural

products, and the imports being English piece-goods, silks, and fruits. Lārkāna town is one of the chief grain marts of Sind.

The North-Western Railway runs through the District from Naodero in the Rato-dero *tāluka* to Sehwān. There are numerous ferries on the Indus and the Western Nāra. The total length of roads is 1,440 miles, of which only 3 miles are metalled. The most frequented roads are covered with dry grass, in order to lay the dust and preserve the surface. The main road runs from Lārkāna to Shikārpur and southwards through Mehar to Sehwān.

Administration.

The *tālukas* are for administrative purposes grouped into three subdivisions, of which two are in charge of Assistant Collectors and one in charge of a Deputy-Collector. The subdivisions are Lārkāna, comprising the LĀRKĀNA, RATO-DERO, LABDARYA, and KAMBAR *tālukas*; Mehar, comprising KĀKAR, MEHAR, and NASĪRĀBĀD; and Sehwān, comprising SEHWĀN, JOHI, and DĀDŪ.

The District is within the jurisdiction of the District and Sessions Judge of Sukkur. There are four Subordinate Judges, whose jurisdiction is confined to civil matters and extends to the same class of suits as are tried by the Subordinate Judges in the rest of the Presidency. Besides the criminal courts of the head *munshīs*, *mukhtyārkārs*, and subdivisional officers, three resident magistrates sit at Lārkāna, Mehar, and Dādū. Cattle-theft is prevalent; and wherever Baloch tribes are settled, blood-feuds are not uncommon. The Sind Frontier Regulations are applied to the Rato-dero, Kambar, Mehar, Kākar, Johi, and Sehwān *tālukas*.

Before the conquest of Sind by the British in 1843, the northern portion of the District was known as the Chāndko *pargana*, and the ownership of the entire lands in each village seems then to have been vested in the *zamīndārs* or headmen and their heirs. They cultivated a portion themselves, leasing the rest to hereditary occupants, who paid *lāpo* or rent to the *zamīndār*, generally in kind, at so many *kāsas*[1] per *bīgha*. A fee, known as *wājāh zamīndāri*, was also claimed by the headman, and levied on the produce. When land was sold, the purchaser became entitled to the *lāpo*, but the *wājāh* was still given to the headman. The *zamīndār* alone dealt with government or the revenue contractor, and made his own collections from the tenants. The prevailing tenure is still *zamīndāri*, about 419 square miles of the whole area being held in *jāgīr* or revenue free. The first settlement of the Lārkāna subdivision was made by Major Goldney in 1847. It was for seven years, and expired in 1853–4. In 1855–6 the rates in the Lārkāna and Kambar *tālukas* were reduced, and a separate assessment fixed on cultivation by wheel or well. The topographical survey commenced in 1859, and the new settlement was introduced

[1] A *kāsa* is a dry measure equal to about one-third of a maund.

in all the *tālukas* for periods ranging from nine to ten years. The rates have since been revised from time to time. The rates per acre of the latest revenue settlement (1893) are: garden land, Rs. 3-10 (maximum Rs. 5-4, minimum Rs. 2-8); rice lands, Rs. 3-9 (maximum Rs. 5-4, minimum Rs. 2-8); and dry land, Rs. 2-11 (maximum Rs. 3-0, minimum Rs. 1-12).

Collections on account of land revenue and revenue from all sources have been, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	12,22	20,45	25,45	24,50
Total revenue . .	13,18	22,14	27,14	29,00

There are five municipalities: LĀRKĀNA, KAMBAR, RATO-DERO, SEHWĀN, and BUBAK. Outside the limits of these, local affairs are managed by a District board and 10 *tāluka* boards, with an income and expenditure of nearly 2 lakhs in 1903-4. The principal source of income is the land cess. In 1903-4 nearly Rs. 75,000 was expended upon buildings and the maintenance of roads.

The District Superintendent of police is assisted by three inspectors. There are four police stations in the District. The total force numbers 559, of whom 15 are chief constables, 109 head constables, and 435 constables. There are ten subsidiary jails in the District, with accommodation for 322 prisoners. The average number of prisoners in 1904 was 68, of whom one was a female.

Lārkāna stands twenty-first among the twenty-four Districts of the Presidency in the literacy of its population, of whom 2·3 per cent. (2·8 males and 0·4 females) are able to read and write. The number of schools in 1903-4 was 574 (inclusive of 235 private), with 16,527 pupils, of whom 1,890 were females. There were only two schools for girls. Of the 339 educational institutions classed as public, secondary schools numbered 7 and primary 332. Of these, 122 are managed by local boards and 10 by municipalities, 206 are aided and one unaided. The total expenditure on education in 1903-4 was over one lakh, of which Rs. 9,100 was derived from fees. Of the total amount, 86 per cent. was devoted to primary schools.

The District possesses 8 dispensaries containing accommodation for 68 in-patients. In 1904 the number of cases treated was 70,100, including 604 in-patients, and 2,848 operations were performed. The expenditure was Rs. 15,700, of which Rs. 13,000 was met from Local and municipal funds.

The number of persons successfully vaccinated in 1903-4 was 14,631, representing a proportion of 22 per 1,000.

[A. W. Hughes, *Gazetteer of the Province of Sind* (1876).]

Lārkāna Subdivision.—Subdivision of Lārkāna District, Sind, Bombay, composed of the LĀRKĀNA, LABDARYA, KAMBAR, and RATO-DERO *tālukas*.

Lārkāna Tāluka.—*Tāluka* of Lārkāna District, Sind, Bombay, lying between 27° 27′ and 27° 46′ N. and 68° 1′ and 68° 28′ E., with an area of 267 square miles. The population in 1901 was 100,827, compared with 90,151 in 1891. The *tāluka* contains one town, LĀRKĀNA (population, 14,543), the head-quarters; and 72 villages. The density, 378 persons per square mile, is the highest in the District. The land revenue and cesses in 1903–4 amounted to 4·2 lakhs. The *tāluka* is flat and is chiefly watered by the Ghar canal and its branches. The south-western portion, irrigated by the Western Nāra, is said to produce the finest rice in Sind. Wheat is largely grown on the banks of the Indus; and several mango groves and date plantations surround Lārkāna town.

Lārkāna Town.—Head-quarters of Lārkāna District, Sind, Bombay, situated in 27° 33′ N. and 68° 16′ E., on the south bank of the Ghār canal, 40 miles south-west of Shikārpur town, and 36 north-east of Mehar, and on the North-Western Railway. Population (1901), 14,543. The country surrounding Lārkāna is fertile and populous, and perhaps the finest tract in the whole of the province. The spacious walks, well laid-out gardens, and luxuriant foliage, have gained for Lārkāna the title of the 'Eden of Sind.' It is one of the most important grain marts of Sind, and is famous for a variety of rice called *sugdāsi*. There is a large local traffic in metals, cloth, and leather. The principal manufactures are cloth of mixed silk and cotton, coarse cotton cloth, metal vessels, and leathern goods. The town contains a dispensary, an Anglo-vernacular school attended by 80 pupils, and a vernacular school with three branches, attended altogether by 379 pupils. The chief local object of interest is the tomb of Shāh Bahārah, who was a military officer of Nūr Muhammad Kalhora and died in 1735. Of modern buildings the most noteworthy are the Collector's office, a fine domed building with an ornamental Darbār hall, erected in 1902; and a neatly-built school and boarding-house for the sons of *zamīndārs*, erected by public subscription in the same year. This school has 60 inmates and teaches English and Sindī. The municipality, established in 1855, had an average income of Rs. 46,000 during the decade ending 1901. In 1903–4 the income was Rs. 54,000.

Las Bela.—Native State on the southern coast of Baluchistān, lying between 24° 54′ and 26° 39′ N. and 64° 7′ and 67° 29′ E., with an area of 6,441 square miles. It is bounded on the north by the Jhalawān division of the Kalāt State; on the south by the Arabian Sea; on the east by the Kīrthar range, which separates it from Sind;

and on the west by the Hālā offshoot of the Pab range. The whole of the eastern part of the State is mountainous; the centre consists of a triangular level plain with its base on the sea; on the west the State has a narrow strip of coast stretching past Ormāra. The hills include the western slopes of the KĪRTHAR mountains as far north as Lak Phusi; the main ridge of the PAB range, with part of the Khude or Khudo and the whole of the Mor offshoot; and on the west the lower slopes of the MAKRĀN COAST RANGE, including Tāloi and Batt. The largest rivers are the PORĀLI and HAB. Minor streams include the Windar, Kharrari, and Phor. The floods of the Windar, Kharrari, and Porāli afford most of the irrigation in the central plain. The Porāli carries a small permanent supply of water at Welpat. The HINGOL is another river which falls into the sea within the State limits. The coast-line extends from the mouth of the Hab river westward for about 250 miles, and possesses two roadsteads in SONMIĀNI and Ormāra. Close to the former lies the large backwater known as Miāni Hor. A little to the north of Sonmiāni is the SIRANDA lake.

Physical aspects.

The State has never been geologically examined. Alluvial deposits cover the central plain, while the hills consist chiefly of limestone. The vegetation consists of a desolate scrub, represented by such plants as *Boucerosia Aucheriana*, *Capparis aphylla*, *Prosopis spicigera*, *Salvadora oleoides*, *Acacia Farnesiana*, and many *Astragali*. Mangrove swamps occur on the coast. Sind ibex and mountain sheep are numerous in the hills. 'Ravine-deer' (gazelle) are plentiful, and some hyenas, wolves, and wild hog occur. Pangolins are not uncommon. Black and grey partridge afford good sport. Many kinds of fish are caught off the coast.

The climate of the northern parts is extremely hot for eight months of the year. From November to February the air is crisp and cool, causing pneumonia among the ill-clad inhabitants. Along the coast a more moderate and moist climate prevails. Throughout the summer a sea-breeze springs up at midday, to catch which the houses of all the better classes are provided with windsails in the roof. The rainfall is capricious and uncertain, and probably does not exceed the annual average of Karāchi, or about 5 inches.

Reference has been made in the article on BALUCHISTĀN to the march of Alexander the Great in 325 B.C. through the southern part of the State. We know that the ruler in the seventh century was a Buddhist priest. The country lay on the route followed by the Arab general, Muhammad bin Kāsim, and Buddhism probably gave place to Islām about this time. The succeeding period is lost in obscurity; but chiefs of the Gūjar, Rūnjhā,

History.

Gūngā, and Burfat tribes, which are still to be found in Las Bela, are said to have exercised a semi-independent sway previous to the rise of the Aliāni family of the Jāmot tribe of Kureshi Arabs, to which the present ruling chief, known as the Jām, belongs. The following is the list of the Aliāni Jāms:—

1. Jām Alī Khān I (surnamed Kathūria), 1742–3.
2. Jām Ghulām Shāh, 1765–6.
3. Jām Mīr Khān I, 1776.
4. Jām Alī Khān II, 1818.
5. Jām Mīr Khān II, *circa* 1830.
6. Jām Alī Khān III, 1888.
7. Jām Mīr Kamāl Khān, 1896 (ruling 1908).

The most prominent of these Jāms was Jām Mīr Khān II, who proved himself a skilful organizer during his long reign. He allied himself with the chiefs of the Jhalawān country in three rebellions against Mīr Khudādād Khān of Kalāt, but in 1869 he was obliged to fly to British territory. In 1877 he was restored to the *masnad.* On his death in 1888 the appointment of a Wazīr, selected by the British Government, was created to assist his successor. The ruling Jām, Mīr Kamāl Khān, did not receive full powers at his accession, but since 1902 they have been increased. The existing relations of the State with the British Government have been detailed in the section on Native States in the article on BALUCHISTĀN.

The shrines of HINGLĀJ and Shāh Bilāwal; the caves at Gondrāni, north of Bela, hewn out of the solid conglomerate rock and possibly of Buddhist origin; and the highly ornamented tombs at Hinidān and other places, affording evidence of a system of superterrene burial, constitute the more important archaeological remains in the State.

Las Bela is divided into seven *niābats*: Welpat, Uthal, Sheh-Liāri, Miāni, Hab, Kanrāch, and Ormāra. It also includes the Levy Tracts along the Hab valley. The permanent villages number 139; the population (1901) is 56,109.

Population.

BELA is the capital town; SONMIĀNI, Uthal, Liāri, and Ormāra are the only other places of importance. The language is Jadgālī, closely allied to Sindī. Some Baluchī is spoken on the coast. The majority of the inhabitants are Sunni Muhammadans; along the coast are a good many Zikris; a few Khojas and Hindus are engaged in trade. The Gadrās (7,900), who are distinctly negritic in type and generally servile dependants or freedmen, indulge in a kind of fetish worship said to have been brought from Africa. The population is distributed into tribal groups, none of which is, however, numerically strong. The principal are the Jāmot (2,900), Rūnjhā (3,800), and Angāria (2,700). The latter, together with the Sābrā, Gūngā, Burrā, Achrā, Dodā, and Māndrā, are termed Numriā, and are believed to be the aborigines

of the country. Landholders and agriculturists compose about half the population; about a quarter are engaged in sheep- and goat-breeding; while the rest are fishermen, traders, labourers, and servile dependants.

Agriculture.

The soil of the country is a fertile, sandy alluvium. Almost the whole of the land depends on flood-irrigation, and for this purpose embankments have been constructed in all the principal rivers except the Hab. The area irrigated from permanent irrigation is small, and most of it lies in the Welpat *niābat*. The number of wells is insignificant. They are worked with a leathern bucket and bullocks. The land is in the hands of peasant proprietors. Cash rents are unknown. Tenants, where they exist, receive a share of the grain heap. Cash wages, except for agricultural labour, which is remunerated in kind, are now coming into vogue. The rates vary from five annas per diem for a common labourer to ten annas for a potter. The staple food-grain of the country is *jowār*, mixed with which *mūng* is grown. These crops constitute the autumn harvest, while the spring harvest consists chiefly of oilseeds.

Sheep, goats, and camels are bred in large numbers, especially the two latter. Camels are used for both transport and riding. Horses and ponies are few in number. Bullocks and cows of moderate size are kept for agricultural purposes. Fishing forms an important industry along the coast.

The forests are not systematically 'reserved.' The State derives a small income from those at Malān and Batt, and from the mangroves which grow in the swamps along the coast. In years of good rainfall much excellent forage grass grows on the lower hills and is exported to Karāchi. The minor forest products are gum arabic, bdellium, and honey. Little is known about the minerals in the State. Marcasite is of frequent occurrence, but not in quantities sufficient to be of commercial value. Limestone is burnt and exported to Karāchi, the State deriving about Rs. 1,500 per annum from it as duty. Salt is obtained from surface excavations at Brār.

Trade and communications.

Rugs of excellent quality are manufactured in the *darī* stitch, and good embroidery is done on cloth and leather with a steel crochet-needle. Trade finds its way to Karāchi by land, and by sea from Gāgu, Sonmiāni, and Ormāra. Caravans proceed to Makrān to exchange grain for dates. The land trade with Sind in 1902–3 was valued at 6·9 lakhs, exports being 5·6 and imports 1·3 lakhs. No separate figures are available for maritime trade. The imports include piece-goods and food-grains, especially rice; and the exports wool, oilseeds, sheep and goats, *ghī*, and fish-maws.

The only road is a track, 101 miles long and 12 feet wide, from the

Hab river to Bela. Caravan routes connect Sonmiāni with Ormāra, Bela with Makrān, and Bela with Kalāt via Wad. The Indo-European Telegraph line traverses the coast for 226 miles, with an office at Ormāra. The Jām receives a subsidy of Rs. 8,400 per annum for its protection. A daily post, organized by the State, is carried between Karāchi and Bela, and a bi-weekly service runs between Liāri and Ormāra. Postal expenditure amounts to about Rs. 4,200 annually, and the receipts from stamps to about Rs. 600.

Famine. Las Bela is liable to frequent droughts. The longest in living memory took place between 1897 and 1900, when large numbers of cattle died and a sum of Rs. 5,000 was spent by the State in relief. The poorer classes at such times resort to Karāchi, where a large demand for labour exists.

Administration. A description of the system of administration has been given in the paragraphs on Native States in the article on BALUCHISTĀN. The suits tried in 1903 aggregated 1,094, including 267 criminal, 658 civil, and 169 revenue and miscellaneous cases. Cases are seldom referred to *jirgas*. The most common form of crime is cattle-lifting. Special mention may be made of the administration of the Levy Tracts. They formerly belonged to Kalāt; but, in the struggles which occurred during Mīr Khudādād Khān's reign (1857–93), the Chhutta inhabitants developed raiding propensities, directing their attacks against both Sind and Las Bela. A force of Sind Border Police had been organized in 1872 to guard the frontier, but it was not successful; and in 1884 a system of tribal responsibility, under the direction of the Jām, was introduced, the funds being found by the British Government. The Las Bela State has since acquired the right to the collection of transit dues in this tract, from which it receives an income of between Rs. 2,000 and Rs. 3,000 per annum.

The revenue varies from about $1\frac{3}{4}$ lakhs to $2\frac{1}{4}$ lakhs, according to the character of the agricultural seasons. The expenditure is generally about 2 lakhs. The principal sources of income are land revenue, about Rs. 85,000, and transit dues, which are levied on a complicated system, about Rs. 95,000. Fisheries produce about Rs. 24,500. The expenditure includes the personal allowances of the Jām, about Rs. 40,000; civil establishments, Rs. 50,000; and military, Rs. 45,000. A surplus of Rs. 1,50,000 has been invested in Government securities. Most of the revenue is collected direct by the State officials, but in some cases contracts are given to local traders.

The systematic organization of the land revenue system is of recent growth. Up to the time of Jām Mīr Khān II, military service appears to have been the only obligation on the cultivators. This chief began by assessing land in the possession of traders, and the assessment

has since been extended to lands newly brought under cultivation. Revenue-free grants are held chiefly by Saiyids, Shaikhs, Jāmots, Shāhoks, and Numriās. The system of assessment is by appraisement (*tashkhīs*), the State share being fixed by the *tahsīldār* or his representative. The general rate is one-fourth of the produce. Cultivators of crown lands pay one-third.

A force of military police, consisting of 104 Punjābis, is maintained at Bela under the orders of the Wazīr. They were raised in 1897 and are armed with Snider carbines. The State troops, known as *Fauj Lāsi*, consist of 212 foot, 36 cavalry, and 5 guns. The *naibs* are assisted by sixty-one local levies, known as *faslī* sepoys. Twelve *chaukīdārs* are also maintained. The tribal service of the Levy Tracts consists of five officers, thirty-five footmen, sixteen mounted men, and five clerks, maintained at a total annual cost to Provincial revenues of about Rs. 10,000. The jail at Bela has accommodation for about 70 prisoners. Bela and Uthal each possess a primary school in which 115 boys are under instruction. A dispensary is maintained at Bela at a cost of about Rs. 1,800 per annum. In 1903, 4,750 patients were treated. The commonest diseases are malarial fever, diseases of the eye, and ulcers. A vaccinator is attached to the dispensary, but vaccination is unpopular. Inoculation is practically unknown.

[J. C. Stocks, *New Journal of Botany*, vol. ii (1850); A. W. Hughes, *Baluchistān* (1877).]

Lashio.—Head-quarters of the Superintendent of the Northern Shan States, Burma, situated in 22° 56′ N. and 97° 45′ E., at the western corner of North Hsenwi, about 2,800 feet above the sea. It consists of a civil station, a military police post, small settlements of natives of India, Burmans, and Chinese, and some scattered hamlets of Shans. The civil station proper is situated on a low spur overlooking the upper valley of the Nam Yao. The railway station, which is the present terminus of the Mandalay-Lashio branch, is 2 miles distant in the valley. By cart-road Lashio is 178 miles, and by railway 180 miles, from Mandalay.

The climate is good, though, like most places in the Shan States, there is a very considerable range of temperature. During the five years ending 1904 the average maximum temperature was 81°, and the average minimum 60° (mean temperature 70°). The annual rainfall for the same period averaged 62 inches. The population in 1901 (before the railway was opened) was 1,613, including military police. In April, 1904, however, the limits of the station were extended, and the population of the area now included was 2,565 according to the Census of 1901. The native population comprises Shans, Burmans, natives of India, Palaungs, and Chinese. The civil hospital has 20 beds,

and a military police hospital 24. At the former, 408 in-patients and 7,087 out-patients were treated in 1904. Lashio has recently been constituted a 'notified area,' and its affairs are managed by a committee of five members. There is a small daily bazar, and a large market is held every five days, the latter being fairly well attended by people from the neighbouring villages. The immediate vicinity of the station does not produce any commodities for export, but several traders have settled since the opening of the railway, and a certain amount of merchandise changes hands here. The Shan village of Old Lashio, about 2 miles off in the valley, has a considerable market for opium. The great want of the place hitherto has been a good and permanent water-supply. Steps have been taken recently to supply this defect, and a pipe water-supply is in course of construction.

Lash-Jawain.—A fort rather than a town in the Lash-Jawain (Hok or Hokat) district of the Farrah province of Afghānistān, situated in 31° 41′ N. and 61° 35′ E. It stands on the right bank of the Farrah Rūd, on the end of a promontory projecting from the Dasht-i-Panjdeh. The population of the surrounding district is small, chiefly Ishākzai Durrānis, with some Tājiks; and there are no local industries. The ruins everywhere met with testify to the former prosperity of the country, and contrast strangely with the wretched mud hovels now forming its villages. The ruins are of Arab origin, but include the less artistic and inferior remains of more modern structures. This decay has been caused by the successive invasions and revolutions that have for centuries devastated the district, from the time of Chingiz Khān.

Lashkar (= 'Camp').—Modern capital of Gwalior State, Central India, situated in 26° 13′ N. and 78° 10′ E., 2 miles south of the fort and old town of Gwalior, and 763 miles by rail from Bombay. The original capital of Sindhia's dominions was Ujjain. Lashkar, now the largest and most important city in the Central India Agency, owes its foundation to Daulat Rao Sindhia, who, in 1810, after wresting the district from his vassal, Ambājī Inglia, fixed on this spot for his standing camp. A year or so later a few buildings were erected, notably the old palace now called Mahārājwārā. Even in 1818, however, the place was little more than a great encampment, as the following description by an eyewitness shows:—

'It presents the appearance of an immense village, or rather collection of villages, with about a dozen "chunamed" buildings, shapeless, coarse, without any air of ornament. . . . And here and there many small trees and hedges of the milk-plant, all of quick growth and late planting, but yet giving the whole a fixed and settled aspect. . . . At the second gaze, however, you see interspersed many tents and "palls," flags and pennons, in some parts hutted lines and piles of arms . . . in one range a large regular park of artillery, in all open spaces horses picketed, strings of camels, and a few stately elephants. On the skirts

of this large mass a few smaller and more regular encampments belonging to particular chiefs with their followers, better armed and mounted. The sounds, too, of neighings of horses, drums and firearms, and occasionally the piercing trump of an elephant mingled in the confusion with the hum of a population loud, busy, and tumultuous, convincingly tell you that the trade here is war, the manufacture one of arms[1].'

By 1829, however, the city had assumed a more settled appearance, the main street having many large houses built of stone.

In 1858, during the Mutiny, the Rānī of Jhānsi and Tāntiā Topī joined forces, and on May 30 appeared before Lashkar, and called on Sindhia for assistance. Sindhia not only refused, but attacked them. His army, however, mutinied and, except for his Marāthā guard, went over *en masse* to the enemy. Sindhia was protected by his Marāthās, and reached Agra fort in safety. He was reinstated at Lashkar on June 20 by Sir Hugh Rose and the Resident, Major Macpherson.

The city is picturesquely situated in a horseshoe-shaped valley opening eastwards. Just below the fort are the palaces, standing in a walled enclosure, known as the Phūl Bāgh, or flower garden. The modern residence of the chief, the Jai Bilās palace, and the older Motī Mahal, now used for departmental offices, a museum and other buildings, are all situated within this enclosure. Outside it, to the south, are the Elgin Club for the Sardārs of the State, managed on the lines of a European club, the Victoria College, and the Jayājī Rao Hospital. The city proper lies beyond the palaces. It is bisected by the main road, leading from the Gwalior railway station, and is divided into numerous quarters. The Sarrāfa or bankers' quarter is, however, the only street with any pretensions. This is a fine broad road, not unlike the Chāndni Chauk at Delhi; but the houses, on close inspection, are seen to be in bad taste, Italian finials and balustrades being mingled with exquisite native stone-work, while the thin, poorly built walls are but inadequately concealed by a certain veneer of smartness.

The architecture of the city generally has little to recommend it, although Gwalior is still the centre of a stone-carving industry which has been famous for centuries, a fact only to be explained by the demoralizing effect which the Marāthā inroads of the eighteenth century had on all the arts. The great Jai Bilās palace, built in 1874, is constructed on the general plan of an Italian *palazzo*, but is unfortunately disfigured by an incongruous mingling of European and Indian styles. It contains a fine Darbār hall, 100 feet long by 50 wide and 40 high. The earlier Motī Mahal palace is a copy of the Peshwā's palace at Poona, and is an example of the debased style of the eighteenth century. The modern Jayājī Rao Hospital and Victoria College are, however, really handsome buildings. The Chhatrīs or cenotaphs of

[1] *Sketches of India by an Officer for Fireside Travellers*, p. 254.

the Sindhias, which are situated to the south of the city, are good examples of modern Hindu architecture, especially that of the late Mahārājā.

The population has been: (1881) 88,066, (1891) 88,317, and (1901) 102,626. Hindus number 77,606, or 76 per cent., and Musalmāns 22,512, or 22 per cent. These figures include the population of the cantonment or Lashkar Brigade, which amounted to 13,472 in 1901. The people are on the whole well-to-do, many of the merchants being men of great wealth. The principal sources of trade are banking and exchange, stone-carving, and the export of building stone and grain. There are many temples in the city, but none is of special interest. Lashkar is well supplied with metalled roads, and a branch of the Gwalior Light Railway runs from the Gwalior station to the Jai Bilās palace. The General Post Office belonging to the State postal system is in the Jayendraganj quarter, with branches in other quarters.

The city is administered by a municipal board, originally established in 1887. It now consists of 70 members, of whom 22 are officials, and the rest elected. They have control of the city proper, which is divided into eighteen wards. The management of the lighting, conservancy, roads, markets, drainage, and sanitation, and the acquirement of land for public purposes are in their hands. In 1903 the total income was Rs. 72,000, chiefly derived from taxes on lighting, bazars, hackney carriages, and the rent of certain lands; and the expenditure was Rs. 50,600, including conservancy (Rs. 14,000) and public works (Rs. 9,900). Public institutions include the Jayājī Rao Hospital with two branches, an asylum for the blind, the Victoria College with three connected schools, a free library in the old Mahārājwārā palace, a school for the sons of State nobles, besides a military school, a service school, and two girls' schools. State guesthouses are maintained near the palace and railway station for Europeans; and there are two *sarais* for native visitors, of which the Dufferin *sarai* is a picturesque building close to the station.

At the south-east corner of the city lies the cantonment or Lashkar Brigade, known popularly by its earlier title of the Kampu. It is in charge of a special magistrate, who is responsible for the sanitation as well as the magisterial work. The land on which the Brigade stands was originally part of two villages, Gura-Guri and Rājpura. Daulat Rao Sindhia selected this site for the encampment of the troops under his immediate personal command. Three other plots were added for the regular battalions under his European generals, Alexander, Jean Baptiste Filose, and Jacob. By the seventh article of the treaty entered into with the British Government in 1844, these camps were broken up; and the Alexander Kampu was added to the Mahārājā's to form a cantonment for the State troops which he was permitted to

maintain under that treaty. Houses and a few shops gradually sprang up round the lines. In 1859 a large building was erected, known as the Kampu Kothi, in which Jayājī Rao resided from 1866 to 1874. Subsequently it was used for the military offices, and since 1900 the military school has been located there. The chief officers of the military department reside in Lashkar Brigade, including the commander-in-chief, adjutant-general, and the quartermaster-general of the State forces and their staffs. The State workshop is also here. Instituted originally for military purposes, it has developed into a general workshop in which work of all kinds is carried out, including repairs for the Gwalior Light Railway. Some of the State troops are quartered at MORĀR, 4 miles away.

Lasur.—Village in the Chopda *tāluka* of East Khāndesh District, Bombay, situated in 21° 18′ N. and 75° 15′ E., 8 miles north-west of Chopda town. Population (1901), 2,557. Lasur is now nothing but a collection of mud huts and irregularly built houses, but the ruins of a fort, a fine well, and the remains of a mosque attest its former importance. The fort was dismantled by the British, and the Thoke's mansion was burnt down a few years ago. The history of the family illustrates the state of Khāndesh in the beginning of the nineteenth century. The Carnatic mercenaries, employed by every petty proprietor, had made themselves so obnoxious that Gulzār Khān Thoke, the holder of the strong fort of Lasur, enlisted a body of Arabs to oppose them. Unable to control or pay his Arabs, he used to let them loose on the country round, till at last the other proprietors, entering into a league against him, bribed his Arabs to assassinate him at Lasur and his eldest son Alīyār Khān at Chopda. A second son, Alaf Khān, escaping from Lasur, took refuge with Surajī Rao Nimbālkar of Yāval. Returning with some Carnatic mercenaries lent him by the Nimbālkar, Alaf Khān, on pretence of paying the Arabs their arrears, entered the fort, and the Carnatic troops seized the Arabs and put them to death. But instead of being in possession of his own fort, Alaf Khān found that his hired force had orders to hold the fort for their master the Nimbālkar. Driven to despair, Alaf Khān allied himself with the Bhīls and plundered without mercy. At last the Nimbālkar agreed to give up the fort for a money payment of Rs. 10,000. This sum Captain Briggs advanced to the Thoke family and occupied the fort with British troops. Subsequently a member of the Thoke family was appointed keeper of the hills and of the Bhirram pass, and the family now serve as headmen of the village. The village contains a boys' school with 8 pupils.

Laswāri.—Village in the Rāmgarh *tahsīl* of the State of Alwar, Rājputāna, situated in 27° 33′ N. and 76° 56′ E., on the left bank of the Rūparel river, about 20 miles east of Alwar city. The place is

famous as the scene of the great battle of November 1, 1803, which terminated in the utter defeat of the Marāthās by the British under the command of General (afterwards Lord) Lake. The battle is thus described by Marshman :—

'He [General Lake] had received an unfounded report that the Marāthā army was endeavouring to avoid him, and, with his usual impetuosity, started at midnight in search of it, with his cavalry alone, leaving orders for the infantry to follow. He came up with the encampment of the enemy at daybreak on November 1, at the village of Laswāri, and found them, as usual, entrenched in a formidable position, with their guns drawn up in the front. The general led his cavalry up in person to the attack; a fearful discharge of grape and double-headed shot mowed down column after column, and rendered the fiery valour of the troops useless. To prevent their utter extinction, the general was obliged to withdraw them from the conflict, and await the arrival of the infantry, who had marched 65 miles in the preceding forty-eight hours, and 25 miles since midnight. After a brief rest and a hasty meal, they were launched on the enemy's guns and battalions. The engagement was the severest in which the Company's troops had ever been engaged, not excepting that of Assaye. Sindhia's sepoys fought as natives had never fought before. They defended their position to the last extremity, contesting every point inch by inch, and refusing to give way while a single gun remained in their possession. But they were at length overpowered, and lost their ammunition and camp equipage, together with 71 pieces of cannon. It was even reported that one-half their number was left on the field, killed or wounded. On the British side, the casualties amounted to 824, one-fourth of which belonged to the 76th Regiment, which bore the brunt of the action.'

[See also Appendix IV, pp. 302–9 of *The Rājputāna Gazetteer*, vol. iii (Simla, 1880).]

Lāthi State.—State in the Kāthiāwār Political Agency, Bombay, lying between 21° 41′ and 21° 45′ N. and 71° 23′ and 71° 32′ E., with an area of 42 square miles. The population in 1901 was 8,831, residing in nine villages. The revenue in 1903–4 was Rs. 1,37,500, and 33 square miles were cultivated. The State ranks as a fourth-class State in Kāthiāwār. The Lāthi chiefs are descended from Sārangjī, one of the sons of the Gohel Sejakjī, the common ancestor of the Bhaunagar, Pālitāna, and Lāthi houses. One of the Thākurs of Lāthi wedded his daughter to Dāmājī Gaikwār and gave the estate of Chabhāria, now called Dāmnagar, in dowry, being exempted from tribute in return. He now offers a horse yearly. In 1807 the Gaikwār became security for the Thākur's engagements to keep order in his territory.

Lāthi Town.—Chief town of the State of the same name in Kāthiāwār, Bombay, situated in 21° 43′ N. and 71° 28′ E., on the Bhavnagar-

Gondal-Junāgarh-Porbandar Railway. Population (1901) 5,997. It contains a dispensary and is well supplied with public offices.

Lātūr.—Town in the Owsa *tāluk* of Osmānābād District, Hyderābād State, situated in 18° 25′ N. and 76° 35′ E. Population (1901), 10,479. Lātūr is a great centre of the cotton and grain trade in communication with Bārsi railway station, 64 miles distant. It has three ginning factories, a British sub-post office, and a State post office, as well as a vernacular school and a travellers' bungalow.

Launglon.—Western township of Tavoy District, Lower Burma, lying between 13° 31′ and 14° 13′ N. and 98° 5′ and 98° 14′ E., with an area of 355 square miles. It consists of a narrow strip of country, covered with low hills running north and south between the sea and the lower reaches of the Tavoy river. The population was 27,209 in 1891, and 33,187 in 1901, distributed over 112 villages. The density in the latter year was 99 persons per square mile. The population is almost wholly Burman. The head-quarters are at Launglon, a village of 1,461 inhabitants, situated about 8 miles south-west of Tavoy town. Maungmagan, a village on the coast north-west of Tavoy, is resorted to for sea-bathing by the residents. It has a fine sandy beach and picturesque surroundings. The area cultivated in 1903–4 was 70 square miles, paying Rs. 88,000 land revenue.

Laur.—The name of an old Hindu kingdom, which at one time occupied the north-western portion of what is now the District of Sylhet, Eastern Bengal and Assam. Gor or Sylhet proper was conquered by the Muhammadans in A.D. 1384, but Laur retained its independence for another two hundred years. One of the Rājās, named Gobind, was summoned to Delhi and there embraced the Muhammadan faith; and his grandson, Abid Reza, abandoned Laur and built the town of BĀNIYĀCHUNG at the beginning of the eighteenth century. Under the Mughal empire the Rājās of Laur were held responsible for the defence of the frontier, and their estates were not actually assessed to revenue till the middle of the eighteenth century. In 1765 Laur came under the civil administration of the British, with the rest of Bengal.

Lauriyā Nandangarh.—Village in the Bettiah subdivision of Champāran District, Bengal, situated in 26° 59′ N. and 84° 25′ E. Population (1901), 2,062. The village contains three rows of huge conical mounds, which General Cunningham believed to be the tombs of early kings, belonging to a period antecedent to the rise of Buddhism. Near these mounds stands a lion pillar inscribed with the edicts of Asoka. It is a single block of polished sandstone, 32 feet 9 inches high, the diameter tapering from 35·5 inches at the base to 26·2 inches at the top. The capital supports a statue of a lion facing the north; the circular abacus is ornamented with a row of Brāhmani geese. The

pillar is now worshipped as a *linga*, and is commonly known as Bhīm Singh's *lāth* or club.

Lāwa.—Estate or *thākurat* in Rājputāna. Though its area is but 19 square miles, it is important from the fact of its being a separate chiefship under the protection of the British Government and independent of any Native State. It lies between 26° 18′ and 26° 25′ N. and 75° 31′ and 75° 36′ E., being surrounded by Jaipur territory on all sides except the east, where it borders on Tonk; it is about 45 miles south-west of Jaipur city and 20 miles north-west of Tonk city.

The lands comprising the estate formerly belonged to Jaipur, and in 1772 were granted in *jāgīr* to Nāhar Singh, a member of the ruling family. Subsequently Lāwa and other Jaipur territory in its vicinity fell under the domination of the Marāthās, represented by the Pindāri leader Amīr Khān, and in 1817 became part of the State of Tonk then founded. For many years there was constant fighting, arising from the desire of the Tonk Darbār to reduce the sturdy Thākurs of Lāwa to greater submission than they had been accustomed to yield; and in 1865 a force dispatched from Tonk unsuccessfully laid siege to Lāwa, losing 300 men in killed and wounded. The Nawāb of Tonk, Muhammad Alī Khān, continued to harass his feudatory, and affairs reached a climax when the Thākur's uncle and his fourteen followers were treacherously murdered at Tonk in 1867. It was fully proved that this crime was perpetrated with the knowledge, and at the instigation, of the Tonk chief; and a proclamation issued to the people by order of the Governor-General announced the deposition of the Nawāb and the succession of his son. 'Lāwa,' it went on to say, 'will now become a separate chiefship, and will so remain for ever under the protection of the British Government.' In 1868 Lāwa was placed under the political supervision of the Resident at Jaipur. The tribute of Rs. 3,000 (local currency), formerly paid to Tonk, became payable to the British Government; but the latter, in consequence of the indebtedness of the estate, held its claim in abeyance till 1883, when the tribute was reduced to the nominal sum of Rs. 225 a year. In 1879 the Thākur agreed to suppress the manufacture of salt, and to abolish all taxes and transit duties on every article except *gānja*, spirits, opium, or other intoxicating drugs; as compensation for these concessions, he receives from Government annually Rs. 700 and 10 maunds of salt.

The Thākurs of Lāwa belong to the Narūka sept of the Kachwāha Rājputs. The present Thākur, Mangal Singh, was born in 1873, and succeeded to the estate in May, 1892. He is a Rao Bahādur, and holds the title of Rājā as a personal distinction.

The population of the estate, which consists of one large village and five attached hamlets, was 2,682 in 1881, 3,360 in 1891, and 2,671 in 1901; the decrease since 1891 was mainly due to the famine

of 1899–1900. At the last Census Hindus numbered 2,350, or about 88 per cent. of the population, Muhammadans 161, and Jains 160. One-third of the people are engaged in agriculture, and the area ordinarily cultivated is about 8,000 acres, of which one-eighth is irrigated. Irrigation is from wells, which number 150, and from tanks, of which there are 7. The land revenue, amounting to about Rs. 10,000, is for the most part collected in kind, the chief taking one-third of the produce as his share. The normal revenue and expenditure of the estate are approximately Rs. 11,000. The Thākur disposes of all petty criminal and civil cases; but in serious or important cases, which are very rare, the preliminary inquiry is made by him, and the record is then submitted to the Resident at Jaipur for final decision.

Lāwar.—Town in the District and *tahsīl* of Meerut, United Provinces, situated in 29° 7′ N. and 77° 47′ E., 12 miles north of Meerut city. Population (1901), 5,046. It belongs to the descendants of Mīr Surkh, a native of Mazandarān, who acquired forty-five villages in the neighbourhood. It contains a fine house, called the Mahal Sarai, built about 1700 by Jawāhir Singh, who also excavated the Sūraj Kund (tank) at Meerut. Lāwar is administered under Act XX of 1856, with an income of about Rs. 1,500. In 1904 the primary school had 80 pupils.

Lawksawk (Burmese, *Yatsauk*).—State in the central division of the Southern Shan States, Burma, lying between 20° 58′ and 22° 16′ N. and 96° 37′ and 97° 20′ E., with an area (including its dependency of Möngping) of 2,197 square miles. On the north it is bounded by the Hsīpaw State, from which it is separated by the Myitnge or Nam Tu river; on the east by Möngküng, Laihka, and Möngnai; on the south by Yawnghwe and two small Myelat States; and on the west by the Myelat States of Yengan and Maw and by Kyaukse District. The Möngping (Burmese, *Maingpyin*) dependency occupies the south-eastern portion, from which it is cut off by the Nam Et river. The State is broken and mountainous, the hills having a general north and south trend, with high ranges running along the eastern and western boundaries and down the centre. The eastern portion drains into the Nam Lang and its tributary the Nam Et, which run northwards throughout the length of the State to join the Nam Tu; the western portion is watered by the Zawgyi, which is a tributary of the Irrawaddy, and irrigates a large area of Kyaukse District. The middle and southern portions of the State consist of a fine rolling plateau, 3,500 feet above the sea, on which clumps of pine and oak stand in fine grassy glades. Of the several important forest areas, the richest is known as the Pyaungshu forest. The crops grown in the State are rice, sesamum, cotton, ground-nuts, and oranges. The Taungthus cultivate the hill-sides, and the Shans and Danus irrigate

their crops in the valleys. *Thanatpet* is cultivated for cigar-wrappers. The State had been ravaged and almost entirely depopulated at the time of annexation (*see* article on SOUTHERN SHAN STATES). In 1901 the population numbered only 24,839 (distributed in 397 villages), of whom 11,847 spoke Shan, 10,077 Burmese (Burmans or Danus), and 2,056 Taungthu. There are a few Palaungs and Taungyos. The capital, Lawksawk (population, 1,648), is well situated on a slope rising from the valley of the Zawgyi, and was once strongly fortified. The revenue in 1903–4 amounted to Rs. 27,000, the main source being *thathameda*; and the expenditure included Rs. 14,000 tribute to the British Government, Rs. 6,700 contribution to the privy purse, Rs. 2,600 pay of officials, Rs. 2,500 cost of general administration, and Rs. 1,300 public works.

Lebong.—Mountain range in Almorā District, United Provinces, forming part of the Himālayan system, and separating Biāns from the Dārmā valley. It is crossed by a difficult pass, situated in 30° 20′ N. and 80° 38′ E., which is covered with snow throughout the year. The crest of the pass has an elevation of 18,942 feet above sea-level.

Lebong.—Cantonment in the head-quarters subdivision of Darjeeling District, Bengal, situated in 27° 4′ N. and 88° 17′ E., below the station of Darjeeling, at an altitude of 5,970 feet. Population (1901), 208. Barracks built in 1896 contain accommodation for about 450 men, but Government has purchased land on the Lebong spur with the intention of building sufficient barracks to accommodate a whole battalion of British infantry.

Ledo.—Coal-mines in Lakhimpur District, Eastern Bengal and Assam. *See* MĀRGHERITĀ.

Legaing.—Central township of Minbu District, Upper Burma, lying in the Mon valley, between 20° 9′ and 20° 29′ N. and 94° 26′ and 94° 48′ E., with an area of 533 square miles. The population was 35,895 in 1891, and 36,397 in 1901, distributed in 146 villages, Legaing (population, 2,787), a village about 15 miles north-west of Minbu, being the head-quarters. A large tract of the township, which is undulating and dry, will be irrigated by the Mon canals now under construction. The area cultivated in 1903–4 was 70 square miles, and the land revenue and *thathameda* amounted to Rs. 1,15,000.

Legya.—State in Southern Shan States, Burma. *See* LAIHKA.

Leiah Tahsīl.—Southernmost cis-Indus *tahsīl* of Miānwāli District, Punjab, lying between 30° 36′ and 31° 24′ N. and 70° 46′ and 71° 50′ E., with an area of 2,417 square miles. The population in 1901 was 122,678, compared with 113,451 in 1891. The *tahsīl* contains the towns of LEIAH (population, 7,546), the head-quarters, and KAROR LĀL ISA (3,243); and 118 villages. The land revenue and cesses in 1903–4 amounted to 1·6 lakhs. The *tahsīl* is divided

into the Thal and the Kacchi, the former a high sandy tract to the east and the latter a low-lying strip of country along the Indus.

Leiah Town.—Head-quarters of the *tahsīl* of the same name in Miānwāli District, Punjab, situated in 30° 58′ N. and 70° 56′ E., on the high bank of the Indus, east of the river. Population (1901), 7,546. Founded by Kamāl Khān, a Mirāni Baloch and a descendant of the founder of Dera Ghāzi Khān, about 1550, the town was taken about 1620 from the Mirāni rulers by the Jaskānī Balochs, who held it till 1787. After that year Abdun Nabi Sarai was appointed governor by Tīmūr Shāh Durrāni, but three years later it was included in the governorship of Muhammad Khān Sadozai, who transferred his seat of government to MANKERĀ. In 1794 Humāyūn Shāh, the rival claimant to the throne of Kābul, was captured near Leiah and brought into the town, where his eyes were put out by order of Zamān Shāh. Under the Sikh government the town once more became the centre of administration for the neighbouring tract, and on the British occupation in 1849 it was for a time the head-quarters of a District. In 1861, however, the District was broken up, and Leiah became a part of Dera Ismail Khān, but in 1901 was transferred to the new District of Miānwāli. The municipality was created in 1875. The income during the ten years ending 1902–3 averaged Rs. 9,900, and the expenditure Rs. 10,100. In 1903–4 the income was Rs. 10,000, chiefly derived from octroi; and the expenditure was Rs. 10,600. The chief industry of Leiah is the manufacture of blankets. The town contains a dispensary and a municipal Anglo-vernacular middle school.

Leiktho.—Karen township of Toungoo District, Lower Burma, lying between 18° 53′ and 19° 29′ N. and 96° 22′ and 97° 2′ E., with an area of 1,006 square miles. It is mountainous throughout, and well watered, the greater part of the cultivation being *taungya* (shifting). The population was 10,616 in 1891, and 18,675 in 1901 (mostly Karen Christians), distributed in 181 villages, Leiktho (population, 275) being the head-quarters. Only 1,100 acres were cultivated (apart from *taungyas*) in 1903–4, and the land revenue was Rs. 1,000.

Lemyethnā Township.—Township of Henzada District, Lower Burma, lying between 17° 24′ and 17° 47′ N. and 94° 54′ and 95° 18′ E., with an area of 438 square miles. The greater part lies between the Arakan Yoma and the Ngawun river, and is quite unprotected from the rise of the river during the rains. The smaller portion, east of the Ngawun, is protected by embankments. The population increased from 57,049 in 1891 to 60,314 in 1901, almost entirely Burmans, Karens numbering only 3,000. There are 354 villages and one town, LEMYETHNĀ (population, 5,813), the head-quarters. The area cultivated in 1903–4 was 89 square miles, paying Rs. 1,33,000 land revenue.

Lemyethnā Town.—Head-quarters of the township of the same name in Henzada District, Lower Burma, situated in 17° 36′ N. and 95° 11′ E., on the Bassein river, near the south-west corner of the District. Population (1901), 5,813. Its affairs are managed by a town committee. The income and expenditure of the town fund in 1903–4 amounted to Rs. 10,000 and Rs. 11,000 respectively. The civil hospital, supported by local funds, has accommodation for 8 in-patients.

Letpadan Township.—Township of Tharrawaddy District, Lower Burma, lying between 17° 37′ and 18° 10′ N. and 95° 26′ and 96° 10′ E., with an area of 526 square miles. The population in 1901 was 56,098. The eastern portion of the township on the Pegu Yoma is hilly, the western is level and fertile. The head-quarters are at LETPADAN TOWN (population, 8,772), and there are 213 villages. The area cultivated in 1903–4 was 112 square miles, paying Rs. 2,19,000 land revenue.

Letpadan Town.—Head-quarters of the township of the same name in Tharrawaddy District, Lower Burma, situated in 17° 47′ N. and 95° 45′ E., on the railway, 77 miles from Rangoon, and about 8 miles due north of the District head-quarters. Population (1901), 8,772. It was constituted a municipality in 1894. The receipts and expenditure of the municipal fund to the end of 1900–1 averaged Rs. 23,000. In 1903–4 the receipts and expenditure amounted to Rs. 35,000 and Rs. 38,000 respectively. The chief sources of income were house and land tax (Rs. 4,500), and tolls on markets and slaughter-houses (Rs. 20,300); and the principal items of expenditure were conservancy (Rs. 4,300), hospitals (Rs. 4,800), and roads (Rs. 5,000). The town contains an Anglo-vernacular school maintained by subscriptions, under the management of a local committee, and a municipal hospital. It is an important centre of the paddy trade. The Bassein railway joins the main line from Prome to Rangoon at Letpadan station.

Lewe.—South-western township of Yamethin District, Upper Burma, lying between 19° 27′ and 19° 49′ N. and 95° 43′ and 96° 31′ E., with an area of 783 square miles. The greater part is forest. The population has increased very rapidly from 10,328 in 1891 to 30,558 in 1901, distributed in 209 villages. The increase is due to immigration from neighbouring areas, where there have been extensive crop failures. The head-quarters are at Lewe (population, 1,638), on the Yonbin *chaung*, 10 miles from Pyinmanā, and connected with that town by a good road. In 1903–4 the area cultivated was 56 square miles, and the land revenue and *thathameda* amounted to Rs. 1,11,000.

Likhi.—Petty State in MAHĪ KĀNTHA, Bombay.

Limbda.—Petty State in KĀTHIĀWĀR, Bombay.

Limbdi State.—State in the Kāthiāwār Political Agency, Bombay,

lying between 22° 30′ and 22° 37′ N., and between 71° 44′ and 71° 52′E., with an area of 244 square miles. The country is flat. The Bhogāva river flows through the State, but like some of the smaller streams it becomes brackish in the hot season. The climate of Limbdi, though hot, is healthy. The temperature ranges between a maximum of 114° and a minimum of 46°. The annual rainfall averages 25 to 30 inches.

The Limbdi house is sprung from Harpāldeo, who was also the ancestor of the Dhrāngadhra house. Harpāldeo had three sons, the eldest of whom was the founder of the house of Dhrāngadhra; the second was Mānguji, the founder of the house of Limbdi; the third received Sachāna and Chor Vadodra. The chief executed the usual engagements in 1807. The succession follows the rule of primogeniture, and the family holds a *sanad* authorizing adoption. The chief is entitled to a salute of 9 guns, and his official title is Thākur Sāhib. The late chief, who died in 1907, had been created a K.C.I.E. in 1887.

The population at the last four enumerations was: (1872) 40,186, (1881) 43,063, (1891) 48,176, and (1901) 31,287, showing a decrease of 35 per cent. in the last decade, owing to the famine of 1899–1900. In 1901 Hindus numbered 24,001, Muhammadans 2,982, and Jains 4,296. The State contains one town, LIMBDI, the capital, and 46 villages, and supports 91 persons per square mile.

The soil, in some parts black and others red, is largely composed of sand. In 1903–4 the area under cultivation was returned at 87 square miles. There was practically no irrigation. The territory of Limbdi is peculiarly liable to inundations, and suffered severely from this calamity in the years 1878–9 and 1899–1900. Cotton and grain are extensively cultivated, and coarse cloth is manufactured. The State has one cotton-ginning factory. Agricultural produce, which was formerly exported from Dholera, is now carried by the Bhavnagar-Wadhwān Railway.

Limbdi ranks as a second-class State in Kāthiāwār. The chief has power to try his own subjects for capital offences. The revenue in 1903–4 was about 2 lakhs, chiefly derived from land ($1\frac{3}{4}$ lakhs). Revenue is collected in cash in all but four villages, in which a share of the produce is taken. No transit dues are levied. A tribute of Rs. 45,534 is paid jointly to the British Government and the Nawāb of Junāgarh. The only municipality is Limbdi. The chief maintains a military force of 77 men, of whom 27 are mounted. There is also an armed police force of 74 men. There is one jail, with a daily average (1903–4) of 13 prisoners. The State had 17 schools in 1903–4, with a total of 1,447 pupils. One dispensary is maintained, which treated 6,212 patients. In 1903–4 the number of persons vaccinated was 680.

Limbdi Town.—Capital of the State of the same name in Kāthiāwār, Bombay, situated in 22° 34′ N. and 71° 53′ E., on the north bank of the Bhogāva river, 14 miles south-east of Wadhwān and 90 miles north-west of Bhaunagar. Population (1901), 12,485. It was formerly fortified. It is a railway station on the branch between Bhaunagar and Wadhwān of the Bhavnagar-Gondal-Junāgarh-Porbandar Railway. The town contains a dispensary and a library. The old palace in which the Thākur Sāhib lived was destroyed by fire in 1906, when several lives were lost and damage was done to the amount of about 8 lakhs.

Lingampet.—Town in the District and *tāluk* of Medak, Hyderābād State, situated in 18° 11′ N. and 78° 5′ E., 20 miles north-west of Medak town. Population (1901), 5,102. Nodular ironstone is smelted for the manufacture of agricultural implements, and brass vessels are also made and exported.

Lingsugūr District[1].—Frontier District in the Gulbarga Division of the Hyderābād State, situated in the south-west corner adjoining the Bombay Districts of Bijāpur and Dhārwār, which bound it to the west; Gulbarga and Raichūr, which border it to the north and east; and the Madras District of Bellary, from which it is separated by the Tungabhadra river to the east and south. It lies between 15° 3′ and 16° 20′ N. and 75° 48′ and 77° 2′ E., and has a total area of 4,879 square miles; but the area of State and crown lands is only 2,968 square miles, the rest being comprised in the two large *jāgīrs* of the Sālār Jang family and other smaller *jāgīrs* and the two *samasthāns* of Gurgunta and Anegundi. A range of hills 14 miles long, known as the Yamnigadh range, begins at the village of Daryāpur in the Gangāwati *tāluk* and ends in the same *tāluk* at Bamsugūr. In the Shāhpur *tāluk* is a small range called the Muhammadāpur hills, 5 miles long, and the town of Shāhpur is built on part of this. A third range takes its name from Sūrāpur and is 8 miles in length.

Physical aspects.

The most important river is the Kistna, which flows from west to east right through the District for a length of 94 miles. It enters the District in the Lingsugūr *tāluk*, and receives the Bhīma at a point 16 miles north of the town of Raichūr near the boundary of Raichūr District. The next important river is the Tungabhadra, which enters the south of the Gangāwati *tāluk* and flows along the borders of that and the Sindhnūr *tāluk* for a distance of 44 miles, when it enters Raichūr. The Bhīma enters Lingsugūr near Raoza in the Shāhpur *tāluk* in the north, and falls into the Kistna after a course of 42 miles in the District. The other rivers are the Maski and the Sindhnūr

[1] In 1905 the District of Lingsugūr was abolished, the Shāhpur and Sūrāpur *tāluks* being transferred to Gulbarga and the other four to Raichūr.

nullahs, both tributaries of the Tungabhadra. The Devāpur nullah flows through the Sūrāpur *tāluk* for 24 miles and falls into the Kistna.

The chief geological formations are the Archaean, including various forms of gneiss and groups of crystalline schists known as the Dhārwār series; the Kalādgi rocks, occupying a few spurs and outliers near the western frontiers, extensions of the main area situated in Dhārwār and Belgaum; and the Bhīma series, north, west, and south-west of Sāgar, forming a narrow strip between the gneiss and the Deccan trap which constitutes the frontier beyond them. Complete accounts have been published by R. B. Foote in *Memoirs*, *Geological Survey of India*, vol. xii, part i, and in *Records*, vols. xv, part iv; xix, part ii; xxi, part ii; xxii, part i. The Hatti gold-mine is situated in the auriferous Dhārwār schists.

The flora of the District is scanty and is characteristic of the dry zone. The predominant trees are *babūl* (*Acacia arabica*), *nīm*, mango, and species of fig.

In the hills of Gangāwati, Shāhpur, and Sūrāpur, leopards, hunting cheetahs, hyenas, and bears are found; and black-faced monkeys are abundant in the Lingsugūr and Gangāwati *tāluks*. Game-birds are represented by peafowl, partridges, and quails, while duck, teal, and water-fowl are met with in the vicinity of tanks and rivers.

From September to May and June the climate is dry and healthy, but during the monsoons the *tāluks* of Gangāwati and Sūrāpur are very malarious. The Sindhnūr, Kushtagi, and Shāhpur *tāluks* are the healthiest. Though the temperature in May rises to 112° in the day, the nights are cool. In December it falls to 56°. The annual rainfall averages about 21 inches.

History.

The District formed part of the Vijayanagar kingdom in the fourteenth century. After the foundation of the Bahmani dynasty it became part of that kingdom, but was taken and retaken by the rulers of the two States, until it fell to the 'Adil Shāhi rulers of Bijāpur. Upon the conquest of Bijāpur by Aurangzeb it was annexed to the empire of Delhi, but was separated from it when the Hyderābād State was founded by Asaf Jāh, early in the eighteenth century. It was assigned to the British Government under the treaty of 1853, but was restored to the Nizām in 1860.

The forts of ANEGUNDI, MUDGAL, Jaldrug, KOPPAL, and Shāhpur are interesting from an historical as well as an archaeological point of view. Ittugi, 60 miles south-west of Lingsugūr, contains a fine old temple, which dates from A.D. 1112–3. In the village of Gūgi are a Jāma Masjid and the tomb of a local saint, named Pīr Chandā Husain. The villages of Kallūr and Kukanūr also contain ancient temples.

The number of towns and villages in the District, including large

and small *jāgīrs*, is 1,273. The population at the last three enumerations was: (1881) 480,715, (1891) 620,014, and (1901) 675,813. It is divided into six *tāluks* as shown below, and also contains the two large *jāgīrs* of Koppal and Yelbarga, and the two *samasthāns* of Anegundi and Gurgunta. The towns are KOPPAL, SŪRĀPUR, MUDGAL, GANGĀWATI, SĀGAR, SINDHNUR, and LINGSUGŪR. About 90 per cent. of the population are Hindus; while 87 per cent. speak Kanarese and 7 per cent. Urdū. The following table gives the chief statistics of population in 1901:—

Population.

Tāluk.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Lingsugūr .	499	1	95	47,487	95	+ 19·8	Not available.
Sūrāpur .	550	1	133	87,675	159	+ 4·4	
Shāhpur .	490	1	110	81,884	167	+ 13·0	
Sindhnūr .	476	1	65	40,788	86	+ 31·4	
Gangāwati .	429	1	103	54,539	127	+ 18·0	
Kushtagi .	524	...	121	51,769	99	− 10·2	
Jāgīrs, &c. .	1,911	2	640	311,671	163	+ 12·7	
District total	4,879	7	1,267	675,813	138	+ 8·9	16,998

The most numerous caste in the District is that of the Kāpus, an agricultural caste, numbering 181,100, two-thirds of whom are Lingāyats. Kommaras or potters number 104,100; Bedars, 72,000; Sālas or weavers, 30,500; and Upparas, 30,100, of whom 17,700 are extractors of salt from saline earth. The Dhers number 18,200, and the Chamārs or workers in leather, 14,600. The number of persons engaged in, and supported by, agriculture is about 66 per cent. of the total.

At Mudgal there is a Roman Catholic mission, which was established about 1557, during the reign of the Adil Shāhis of Bijāpur, who granted lands to the mission and exempted them from taxes. The mission is one of the oldest in India, and is said to have been established by priests dispatched from Goa by St. Francis Xavier. The native Christian population of the District in 1901 was 524, of whom 481 were Roman Catholics.

Agriculture.

The larger portion of the District is composed of *masab*, a mixture of reddish and white sandy soils, interspersed with *regar* or black soil and *kharab*. In contrast to the Sindhnūr *tāluk*, in which *regar* predominates and *rabi* crops are extensively grown, the soils of the remaining five *tāluks* are chiefly *masab*, and are used for *kharīf* crops. White *jowār*, gram, wheat, cotton, and linseed are the chief *rabi* crops, being raised on the *regar*; while red *jowār*, *bājra*, *tuar* and other pulses, and sesamum are sown in the

masab as *kharīf* crops. The *kharab* soils are utilized for garden produce, and require heavy manuring. The alluvial soils in the valleys of the rivers also produce *rabi* crops, and are very fertile.

The tenure of land is mainly *ryotwāri*. In 1901, out of a total area of 2,968 square miles comprised in the *khālsa* and crown lands, 2,205 were cultivated, 22 being irrigated, while 124 were occupied by cultivable waste and fallows, 130 by forests, and 509 were not available for cultivation. The staple food of the people consists of *jowār*, *bājra*, and *kangni*, produced from 42, 10, and 8 per cent. respectively of the net area cropped. Cotton was grown on 303 and wheat on 39 square miles. Sugar-cane is raised in small quantities with well-irrigation in all the *tāluks*, and in the Gangāwati *tāluk* it is irrigated from the Tungabhadra channel.

In 1888, when the District was settled, there were 331 square miles of unoccupied land, but in 1901 only 124 square miles remained unoccupied. The ryots have done nothing to improve the cultivation by the introduction of new varieties of seed or better agricultural implements.

No special breed of cattle is characteristic of the District. Those in use are strong and well suited for ordinary agricultural work, but not for deep ploughing, for which cattle have to be imported. Up to 1887 Arab stallions were maintained for breeding purposes, but owing to the hot climate breeding operations were not successful. Ponies, sheep, and goats of the ordinary kind are kept.

In the Gangāwati *tāluk* there is some wet cultivation supplied by an old channel 9 miles long, taking off from the Tungabhadra. The total irrigated area in the District is only 22 square miles, supplied by this channel and by wells, of which there are 1,404. Tanks number 89, large and small, but they are used for drinking purposes only. There is great scope for extensive irrigation in the District, and surveys and estimates have been completed for the two Kistna channels and the Bennūr project, which would cost more than 20 lakhs and irrigate 107 square miles, yielding a revenue of about $11\frac{1}{4}$ lakhs. The repair of the large tank at Kachkanūr will cost $2\frac{1}{4}$ lakhs, and it is estimated that it will irrigate 27,170 acres, yielding a revenue of nearly $2\frac{1}{4}$ lakhs.

The District has 130 square miles of unprotected forests in the Shāhpur and Sūrāpur *tāluks*, and on the Yamnigadh hills in the Gangāwati *tāluk*.

The most important mineral is gold, obtained from auriferous quartz. The mines in the Raichūr Doāb were leased in 1894 to the Hyderābād Deccan Company, but are not being worked now. Laminated limestone like the Shāhābād stone is found and worked in the Shāhpur, Sūrāpur, and Kushtagi *tāluks*.

There is no important industry in the District. Coarse cotton cloth

dhotīs, and *sārīs* are woven in decreasing quantities, as mill-made cloth is imported at cheaper rates. Blankets are manufactured by the shepherds from the wool of their sheep, and sold at from Rs. 2 to Rs. 4 apiece. Wooden toys are made at Kanakgiri in the Gangāwati *tāluk*.

Trade and communications.

The chief exports are *jowār*, pulse, and other cereals, cotton, oilseeds, chillies, jaggery, tobacco, *tarvar*, bark, hides, bones, and horns. The principal imports consist of salt, salted fish, opium, spices, gold and silver, copper and brass vessels, refined sugar, iron, kerosene oil, yarn, raw silk, and silk, cotton, and woollen stuffs.

There are five commercial centres in the District—Rangampet in Sūrāpur, Mudgal and Maski in Lingsugūr, Sindhnūr, and Gangāwati—from which the whole of the imported articles are distributed to different parts. Besides these, 37 weekly bazars are held at various places. The trading castes are the Komatis and Mārwāris, who do banking business also.

The south-west corner of the District is crossed by the Southern Mahratta Railway. The total length of gravelled roads is 219 miles, all under the Public Works department. The principal routes are: Lingsugūr to Pāmankalūr (11 miles), to Sūrāpur (30), to Jantgal (59), and Sūrāpur to Nailkal (27).

Famine.

In 1793 and 1803 the District was visited by two great famines known as the *dogibarā* or 'skull' famine and *rāgibarā* or *rāgi* famine, when people and cattle died by thousands. *Jowār* in 1793 sold at two seers per rupee and *rāgi* in 1803 at the same price. The District suffered in 1814, 1819, 1831, and 1866 from famines more or less severe, but worse than all these was that of 1877–8, the effects of which were felt far and wide. Thousands of persons lost their lives, or emigrated to other regions, and many villages were deserted. The rainfall in 1876 was 10 inches, and in 1877 only 2·4 inches, and *rabi* and *kharīf* crops in both years entirely failed. More than 100,000 persons died during this famine, and cholera and small-pox also carried away a large number. These figures refer only to the four *tāluks* of which the District was then composed. More than 75 per cent. of the cattle died for want of water and fodder. In 1892 there was scarcity, and in 1897 there was famine which cost the State 3 lakhs. The great famine of 1900 did not affect the District beyond causing scarcity.

Administration.

The District is divided into three subdivisions: one consists of the two *sarf-i-khās* or crown *tāluks* of Shāhpur and Sūrāpur under the Second Tālukdār; the second consists of the Lingsugūr *tāluk* only, under the Third Tālukdār; and the remaining three *tāluks* are under the First Tālukdār. There is a *tahsīldār* in each *tāluk*.

The *Nāzim-i-Dīwāni*, or District Civil Judge, presides over the District civil court. There are five subordinate civil courts: those of the *tahsīldars* of Lingsugūr, Gangāwati, Kushtagi, and Sindhnūr, and that of a Munsif for the *tāluks* of Shāhpur and Sūrāpur. The First Tālukdār is the chief magistrate of the District, and the *Nāzim-i-Dīwāni* is also a joint-magistrate, exercising magisterial powers during the absence of the First Tālukdār from head-quarters. The Second and Third Tālukdārs and the six *tahsīldārs* exercise second and third-class magisterial powers. There is little serious crime in ordinary years, but in adverse seasons dacoities and cattle and grain thefts increase in proportion to the severity of the season.

Nothing is known of the revenue history of the District beyond the fact that lands were formerly leased on contract. This system was abolished in 1866, and a light rate was fixed per *bīgha* ($\frac{3}{4}$ acre) according to the nature of the land. The revenue survey was completed in 1888, and assessments were fixed for fifteen years. The survey showed that the cultivated area had increased by $29\frac{1}{2}$ per cent. The enhancement of revenue was Rs. 33,600, or nearly $3\frac{1}{2}$ per cent., the demand having risen from 9·8 lakhs to 10·2. The average assessment on 'dry' land is 12 annas (maximum Rs. 1–10, minimum one anna); and on 'wet' land Rs. 7–8 (maximum Rs. 15, minimum Rs. 1–8).

The land revenue and the total revenue of the District are shown below, in thousands of rupees:—

	1881.	1891.	1901.	1903.
Land revenue . .	6,83	11,90	11,07	11,90
Total revenue . .	9,06	15,71	14,95	15,80

Since 1887 a cess of one anna in the rupee on the land revenue has been levied for local purposes, of which a quarter, or Rs. 17,000, is set apart for public works. The District board at Lingsugūr is presided over by the First Tālukdār, and there are *tāluk* boards at the head-quarters of the six *tāluks*.

The First Tālukdār is the head of the District police, with a Superintendent (*Mohtamim*) as his executive deputy. Under him are seven inspectors, 73 subordinate officers, 420 constables, and 25 mounted police. These are distributed among 26 *thānas* and 27 outposts, and also guard the District treasury and the jail. The District jail is in the village of Karkal, near the head-quarters; prisoners whose terms exceed six months are transferred to the Central jail at Gulbarga. There are lock-ups in the six *tāluk* offices.

The proportion of persons in 1901 who were able to read and write was 2·5 per cent. (4 males and 0·1 females). The first State school in the District was opened in 1869, and board schools were

opened in 1896. The total number of pupils under instruction in 1881, 1891, 1901, and 1903 was 775, 1,990, 3,012, and 3,070 respectively. In 1903 there were 29 primary and 3 middle schools, with 130 girls under instruction. The total amount spent on education was Rs. 20,525, of which the State contributed Rs. 13,600. Of the total, 69 per cent. was spent on primary schools. The fee receipts in 1901 amounted to Rs. 1,076.

There are three dispensaries, with a total accommodation for 12 in-patients. The number of cases treated in 1901 was 18,669, including 43 in-patients, and the number of operations performed was 516. The total expenditure amounted to Rs. 7,226. The number of cases successfully vaccinated in 1901 was 2,583, or 3·87 per 1,000 of population.

Lingsugūr Tāluk.—*Tāluk* in Raichūr District, Hyderābād State. Including *jāgīrs*, the area is 703 square miles, and the population in 1901 was 87,547, compared with 73,063 in 1891. It contains two towns, LINGSUGŪR (population, 5,161) and MUDGAL (7,729), the *tāluk* head-quarters; and 180 villages, of which 86 are *jāgīr*. The *samasthān* of Gurgunta, consisting of 38 villages, with a population of 19,937, is included in this *tāluk*. The river Kistna enters the State at Opanhāl in the west and flows in a north-easterly direction. The land revenue in 1901 was 1·6 lakhs.

Lingsugūr Town.—Town in Raichūr District, Hyderābād State, situated in 16° 7′ N. and 76° 3′ E. Population (1901), including the Mahbūb Bāzār, 5,161. It was the head-quarters of Lingsugūr District till 1905, and contains the usual offices, a middle school, a State post office, a dispensary, the District jail, and a British post office. Two weekly markets are held, on Saturdays and Sundays. The Mahbūb Bāzār, 2 miles north of the town, was the site of a cantonment while the District was held by the British from 1853 to 1860.

Lockhart, Fort.—Military post on the Sāmāna range, Kohāt District, North-West Frontier Province. *See* FORT LOCKHART.

Lodhika.—Petty State in KĀTHIĀWĀR, Bombay.

Lodhrān.—Southernmost *tahsīl* of Multān District, Punjab, lying between 29° 22′ and 29° 56′ N. and 71° 22′ and 72° 9′ E., with an area of 1,057 square miles. On the south the Sutlej divides it from Bahāwalpur State. A narrow strip of low-lying country along the river is periodically flooded; between this and the still uncultivated Bār lies a tract irrigated by inundation canals from the Sutlej. The population in 1901 was 113,359, compared with 109,752 in 1891. It contains the towns of KAHROR (population, 5,552) and DUNYĀPUR (2,150), a place of some historical interest; and 262 villages, including Lodhrān, the head-quarters. The land revenue and cesses in 1903–4 amounted to 2·1 lakhs.

Lohajang.—Market in the Munshiganj subdivision of Daccā District, Eastern Bengal and Assam, situated in 23° 25′ N. and 90° 19′ E., on the north bank of the Padmā, and, after Goalundo, the principal steamer station on that river. Population (1901), 464. The Jhulanjātra fair, held here in July or August, is attended by about 800 persons daily.

Lohārdagā.—Town in the head-quarters subdivision of Rānchī District, Bengal, situated in 23° 26′ N. and 84° 41′ E., 47 miles west of Rānchī town. Population (1901), 6,123. Lohārdagā was until 1840 the head-quarters of the District, which was formerly called after it. It was constituted a municipality in 1888. The income during the decade ending 1901–2 averaged Rs. 4,600, and the expenditure Rs. 3,700. In 1903–4 the income was Rs. 4,400, half of which was obtained from a tax on persons (property tax); and the expenditure was Rs. 4,700. A small leper asylum is maintained by a German mission.

Lohāru State.—Native State in the Punjab, under the political control of the Commissioner of the Delhi Division, lying between 28° 21′ and 28° 45′ N. and 75° 40′ and 75° 57′ E., with an area of 222 square miles. Population (1901), 15,229. The State contains the town of LOHĀRU (population, 2,175), its capital; and 56 villages. It consists of a sandy plain, interspersed with sandhills. The founder was Ahmad Bakhsh Khān, a Mughal, who was employed by the Rājā of Alwar in negotiations with Lord Lake in 1803. In recognition of his services, he received Lohāru in perpetuity from the Rājā, and the *pargana* of Fīrozpur, now in Gurgaon District, from Lord Lake on condition of fidelity and military service. He was succeeded by his eldest son, Shams-ud-dīn Khān, who was executed at Delhi for compassing the murder of Mr. Fraser, the Resident, in 1835. The Fīrozpur *pargana* was then confiscated, but the Lohāru estate was made over to Amīn-ud-dīn Khān and Zia-ud-dīn Khān, the two brothers of Shams-ud-dīn. The two chiefs remained in Delhi during the siege in 1857, and after its fall were placed under surveillance, but were eventually released and restored to their position. Alā-ud-dīn, who succeeded his father Amīn-ud-dīn in 1869, received the title of Nawāb, together with a *sanad* of adoption. The present Nawāb, Sir Amīr-ud-dīn Ahmad Khān, K.C.I.E., had for some years managed the State on behalf of his father, Alā-ud-dīn, and succeeded on the death of the latter, in 1884. From 1893 to 1903 its management was in the hands of his younger brother, as the Nawāb had been appointed Superintendent of the Māler Kotla State. Nawāb Sir Amīr-ud-dīn Ahmad Khān enjoys a salute of 9 guns, granted as a personal distinction on January 1, 1903. The revenue of the State from all sources amounts to Rs. 66,000, but the finances were adversely affected by the famines of 1889 and 1901. The State receives an allotment of one chest of 1·25 cwt. of Mālwā opium annually, for which it pays duty at the reduced rate of Rs. 280. This is refunded, with a view

to securing the co-operation of the State officials in the suppression of smuggling. The import of opium from Lohāru into British territory is prohibited.

Lohāru Town.—Capital of the Lohāru State, Punjab, situated in 28° 24′ N. and 75° 52′ E., 52 miles south of Hissār. Population (1901), 2,175. The town once contained a mint of the Jaipur State, and derives its name from the Lohārs or blacksmiths employed therein. It is a straggling village rather than a town, but contains the residence of the Nawāb of Lohāru, the State offices, a hospital, a jail, postal and telegraph offices, &c.

Lohāwat.—Town in the Phalodi district of the State of Jodhpur, Rājputāna, situated in 26° 59′ N. and 72° 36′ E., about 55 miles north by north-west of Jodhpur city. Population (1901), 5,322. Lohāwat is a commercial mart of some importance, and the home of many enterprising Mārwāri traders carrying on business in various parts of India.

Lohit.—River in Assam. *See* LUHIT.

Lohogarh.—Fort in the Māval *tāluka* of Poona District, Bombay, situated in 18° 42′ N. and 73° 29′ E., near the top of the Bor pass, about 4 miles west of Khandāla. Population (1901), 237. Lohogarh is a fort of some antiquity and importance, and was possibly the Olochoera of Ptolemy. In modern times it is mentioned as one of the Bahmani forts taken by Malik Ahmad, the founder of the Nizām Shāhi dynasty. In 1648 Sivajī surprised it, but eighteen years later had to surrender it to the Mughals. It was retaken in 1670, and was afterwards made a subdivisional head-quarters and a treasury. Kānhojī Angriā, the Marāthā pirate, seized it in 1713. Subsequently, during the British operations against the last Marāthā Peshwā Bājī Rao in 1818, Lohogarh was occupied by Lieutenant-Colonel Prother. Till as late as 1845 the fort was garrisoned by a British commandant and a few troops.

Loi-ai (Burmese, *Lwe-e*).—State in the Myelat division of the Southern Shan States, Burma, lying between 20° 26′ and 20° 50′ N. and 96° 33′ and 96° 41′ E., with an area of 200 square miles. It is bounded on the north by Hsamönghkam; on the east by the Hsihkip dependency of Yawnghwe, and by Namhkai; on the south by Namhkai; and on the west by the Yamethin District of Upper Burma. The western portion of the State is hilly, and is watered by affluents of the Panlaung river. The eastern part consists of open rolling downs, and drains into the Nam Pilu. The population in 1901 was 5,442, distributed in 70 villages. More than 4,000 of the total were Taungthus, and the rest Danus, Karens, and Shans. Lonpo (population, 249) is the chief village, and the residence of the Ngwegunhmu. The revenue in 1904-5 amounted to Rs. 5,300, and the tribute to the British Government is Rs. 3,000.

Loilong (Burmese, *Lwelon*).—Largest and most southerly State in

the Myelat division of the Southern Shan States, Burma, lying between 19° 41′ and 20° 14′ N. and 96° 20′ and 96° 58′ E., with an area of 1,600 square miles. On the north it is bounded by Namhkai; on the east by Samka and Sakoi; on the south by Möngpai and Yamethin District; and on the west by Yamethin District. The whole State is a mass of hill ridges running north and south, and culminating in the lofty Byingye range which overlooks Yamethin. It is watered by the numerous hill affluents of the Paunglaung river, which flows in a southerly direction right through it. It is well wooded, but the forests are of little value. Rice is the main crop, and is cultivated both in the irrigated valleys and in *taungyas*. Other products are tobacco, sesamum, indigo, ground-nuts, and vegetables. The Myoza resides at Pinlaung (population, 425), in the north-east corner of the State, near the headwaters of the Balu stream. The population in 1901 was 30,731, distributed in 437 villages. Classified according to language, 17,551 were Taungthus, 4,141 Shans, 2,986 Zayeins, and 2,839 Burmans and Shan-Burmans. The revenue in 1904–5 amounted to Rs. 16,500 (all from *thathameda*). The tribute to the British Government is Rs. 9,600, and Rs. 4,300 is spent on salaries and administration.

Loimaw (Burmese, *Lwemaw*).—Small State in the Myelat division of the Southern Shan States, Burma, lying in 20° 30′ N. and 96° 45′ E., with an area of 49 square miles. It is bounded on the north by Hsamönghkam and Yawnghwe; on the east by Yawnghwe; on the south by Namhkai; and on the west by the Hsihkip dependency of Yawnghwe. The population in 1901 was 4,576 (distributed in 59 villages), of whom four-fifths were Taungthus, and the rest Shans and Danus. The residence of the Ngwegunhmu is at Minywa, a village of 109 inhabitants. The revenue in 1904–5 amounted to Rs. 4,000 (mainly from *thathameda*), and the tribute to the British Government is Rs. 2,500.

Loktak.—Lake situated in the south of Manipur State, Assam, between 24° 27′ and 24° 34′ N. and 93° 47′ and 93° 52′ E. It now covers about 27 square miles, but is said to be gradually decreasing in size. The surface is dotted with floating islands of aquatic plants, forming a refuge for fish and wild-fowl, which are found here in large quantities. At the southern end, where a range of low hills runs into the lake, there are rocky islands, the sites of fishing villages.

Lonār.—Village in the Mehkar *tāluk* of Buldāna District, Berār, situated in 19° 59′ N. and 76° 33′ E. Population (1901), 3,085. It is a place of great antiquity, standing on a hill amid undulating highlands, among which lies the salt lake of Lonār, the fabled den of the demon-giant Lonāsūr, who was overcome in single combat by an incarnation of Vishnu. The god assumed the form of a beautiful youth, and, with the aid of the giant's two sisters, discovered his subterranean abode. With a single touch of his toe he threw off the lid of the den, and found

the giant sleeping on his couch. A hill near Dhākephal, about 36 miles south-west of Lonār, is said to be the lid of the lake thrown off by Vishnu, and to coincide in shape and size with the top of the lake. Lonāsūr was buried in the den or hollow now occupied by the great lake, the water of which is supposed to be the giant's blood. Lonār has ever since been held in great veneration.

The view of the lake is very striking. It is surrounded by a circular ridge of hills about 400 feet high, among which are several old temples and ruins of other monuments. From a crevice on the southern ridge flows an ample spring of sweet water, with a temple at the fountain head. This temple is the finest specimen of Hemādpanti architecture in Berār. The hollow is very nearly circular, a little more than a mile in diameter and from 300 to 400 feet deep. At the bottom lies a shallow lake of water, without any apparent outlet, and charged with sodium chloride and sodium carbonate. The sides of the hollow to the north and north-east are absolutely level with the surrounding country, while on other sides there is a raised rim, from 40 to 100 feet in height, composed of irregularly piled blocks of basalt similar to that which forms the horizontal sheets of lava around. The most plausible explanation for this peculiar hollow is that which ascribes it to a violent gaseous explosion, which must have occurred long after the eruption of the Deccan traps, and in comparatively recent times. Similar explosion-craters occur in the Lower Chindwin District in Upper Burma. Lonār is described in the *Ain-i-Akbarī*, where it is mentioned that the Brāhmans call the place Bishan (Vishnu) Gayā.

Lonauli (*Lonāvla*).—Town in the Māval *tāluka* of Poona District, Bombay, situated in 18° 45′ N. and 73° 24′ E., about 40 miles north-west of Poona city at the top of the Bor pass. Lonauli is an important station on the south-east line of the Great Indian Peninsula Railway. Population (1901), 6,686. A railway reservoir, about 2 miles to the south, affords a fair supply of drinking-water. Close to the town is an ancient wood of fine trees, covering an area of about 56 acres. The municipality, established in 1877, had an average income during the decade ending 1901 of Rs. 11,300. In 1903–4 the income was Rs. 17,400, including Rs. 5,800 derived from the sale of Government securities and withdrawals from the Savings Bank. Lonauli contains locomotive works, Protestant and Roman Catholic chapels, a dispensary, 8 schools (including two supported by missions) with 246 boys and 72 girls, a Masonic lodge, and co-operative stores. Branches of the Methodist Episcopal Mission and the United Free Church of Scotland Mission are at work in Lonauli. There are three hotels, and the place is much frequented by visitors from Bombay in the hot months owing to its temperate climate.

Loralai District.—District of Baluchistān, lying between 29° 37′

and 31° 27′ N. and 67° 43′ and 70° 18′ E., with an area of 7,999 square miles. It derives its name from the Loralai stream, an affluent of the Anambār or Nāri. On the north it is bounded by Zhob District; on the east by the Dera Ghāzi Khān District of the Punjab; on the south by the Marri country; and on the west by Sibi District.

Physical aspects.

It consists of a series of long but narrow valleys hemmed in by rugged mountains, which vary in elevation from 3,000 to 10,000 feet. Those occupying the west and centre have a direction from east to west, and form the upper catchment area of the Anambār river. Those on the east run north and south, and their drainage bursts through the Sulaimān range into the Indus valley. The western ranges, which are highest, contain much juniper and some fine scenery. The central hills consist of three parallel ranges stretching out to meet the Sulaimān range. They are known locally as the Dāmāngarh on the north; the Krū and Gadabār hills in the centre; and the Dabbar range with its eastern continuation on the south. The Anambār, which debouches into Kachhi under the name of the NĀRI, is the principal river of the District. It is formed by the junction of the Loralai, Mara, and Sehān streams, and is joined lower down by the Lākhi and Narechi. On the east three rivers carry the drainage into the Indus valley: the Vihowa and Sanghar in the Mūsā Khel *tahsīl*, and the Kāhā in Bārkhān. Each of these has a small perennial flow, which frequently disappears, however, beneath the stony bed.

The strata exposed in Loralai include the upper, middle, and lower Siwāliks (upper and middle miocene); the Spīntangi limestone and Ghāzij group (middle eocene); volcanic agglomerates and ash-beds of the Deccan trap; the Dunghān group (upper Cretaceous); belemnite beds (neocomian); and some inliers of the massive limestone (Jurassic). A Triassic belt occurs between the District and the Zhob valley.

The District is barely clothed with vegetation. The trees include juniper and pistachio at the higher levels, and acacia and olive on the lower hills. The poplar (*Populus euphratica*) and willow are also to be found. Tamarisk, the wild caper, and dwarf-palm occur in the valleys. Myrtle groves are found in the Smāllan valley, and box on the summit of the Mūsā Khel hills. *Shīsham* (*Dalbergia Sissoo*) has been introduced at Duki and grows well. Orchards are numerous in Sanjāwi, Duki, and Bori, containing apricots, mulberries, and pomegranates. Vineyards are also common in Sanjāwi, Thal, and round Loralai town. Grapes in Thal sell for R. 1 per donkey-load in the season.

Game is not abundant. Some mountain-sheep and *mārkhor* are to be found in the hills, while leopards, black bears, and numerous wolves and hyenas also occur. A few wild hog are occasionally met with.

Snakes are numerous. Fishing is to be had in the Anambār and larger streams.

The climate varies with the elevation, but on the whole is dry and healthy. In the west of the District the seasons are well marked; the summer is cool and pleasant, but the winter is intensely cold, with hard frosts and falls of snow. In the south and east the temperature is more uniform, but the heat in summer is great. The Bori valley is subject to high winds, which are very cold in early spring and have been known to cause considerable mortality. The rainfall is light, the annual average being about 7 inches. In the western parts both summer and winter rain and also some snow are received. The rest of the District depends chiefly on the summer rainfall, which everywhere exceeds that in winter.

History.

The District in ancient times formed the most eastern dependency of the province of Kandahār, and, like that place, its possession alternated from time to time between Mughal, Safavid, and Afghān. Its capital was Duki, which was generally garrisoned. The District lay across one of the main routes from India to Western Asia via the Sakhi Sarwar pass and Pishīn. It provided a contingent of 500 horse and 1,000 foot for Akbar, besides other contributions. In 1653, when Dārā Shikoh, son of the emperor Shāh Jahān, advanced against Kandahār from India, he occupied Duki, which had been held by Persian troops. Later, the District passed to the Durrānis and their successors.

The steps by which different parts of the District have come under British control were gradual. In 1879 the Duki *tahsīl* was ceded under the Treaty of Gandamak, and a force under General Biddulph was sent with Sir Robert Sandeman to explore the country, in the course of which a successful engagement was fought with the Zhob and Bori Kākars at Baghao. The country had long been the battle and raiding-ground of rival tribal factions, the Marris fighting the Lūnis and Khetrāns, the Tarīns of Duki being at constant war with the Dumars and Utmān Khels, and the Mūsā Khels raiding the Baloch of the Punjab. In consequence, the inhabitants of Sanjāwi were brought under British protection in 1881. In 1879 a detachment had been stationed at Vitākri in the Khetrān country to check the Marris, but it was shortly afterwards withdrawn, and in 1887 the valley (now the Bārkhān *tahsīl*) was also taken under protection. In 1884 frequent raids by the Kākars from the north culminated in an attack on coolies employed at Duki, which led to a small punitive expedition being dispatched under General Tanner. The tribesmen submitted, and the expedition eventually resulted in the occupation of the Bori valley in 1886. A settlement had been made with the Mūsā Khels after the expedition of 1884; and on the occupation of Zhob in 1889 the Mūsā

Khel country was included in that Agency, a *tahsīl* being established there in 1892. The District, as it now exists, was formed in 1903, the Mūsā Khel and Bori *tahsīls* being transferred from Zhob District and the Duki, Sanjāwi, and Bārkhān *tahsīls* from Thal-Chotiāli District.

Interesting mounds and ruins mark the course of the ancient trade route from India to Central Asia, but they have never been explored. Remains of large dams, probably used as water reservoirs, exist here and there. A find of coins of the Caliph Marwān II (A.D. 745) has been made at Dabbar Kot.

Population.

The District has 400 inhabited villages and a population (1901) of 67,864, or 8 persons per square mile. Of these, about 95 per cent. are Muhammadans of the Sunni sect, and most of the remainder Hindus. The following table gives statistics of area, &c., by *tahsīls* in 1901:—

Tahsīl.	Area in square miles.	Number of		Population	Population per square mile.
		Towns.	Villages.		
Mūsā Khel	2,213	...	55	15,537	7
Bārkhān	1,317	...	114	14,922	5
Duki	1,951	...	66	12,365	6
Sanjāwi sub-*tahsīl*	446	...	37	6,866	15
Bori	2,072	1	128	18,174	9
District total	7,999	1	400	67,864	8

The principal inhabitants are the Kākars (18,400), Khetrāns (13,600), Mūsā Khels (10,500), Dumars (5,300), Tarīns (3,400), Lūnis (2,600), and Pechi Saiyids (800). With the exception of the Khetrāns, they are all Afghāns. The Khetrāns claim both Baloch and Afghān affinities, but the majority of them are probably of Jat extraction. Most of the people are cultivating proprietors, but some sections are almost entirely flock-owners. A small number of weavers live in the Bārkhān *tahsīl.* Hindus carry on the retail trade of the District. In Duki a curious instance of the assimilation by Hindus of Muhammadan traits and dress is to be found in the Rāmzais, who have long shared the fortunes of the Hasni section of the Khetrāns. They dress as Baloch, and are expert swordsmen and riders. The language of the Afghāns is Pashtū, and that of the Khetrāns is a dialect akin to Western Punjābi.

Agriculture.

The soil of the Bori valley consists of a reddish loam, and is highly productive if properly cultivated. In Duki a pale grey loess occurs; elsewhere extensive gravel deposits are to be found, mixed occasionally with tracts of cultivable red clay. The principal harvest is the *dobe*, or spring crop, which is sown after

the autumn rains, and matures with the aid of the winter moisture. The *mane*, or autumn crop, is sown on the summer rainfall. Lands which depend on rain or floods are generally cropped each year, if the rainfall is sufficient; irrigated lands are allowed to lie fallow for one to four years, but lands close to villages which can be manured are sometimes cropped twice a year.

Of the five *tahsīls*, Sanjāwi alone has been brought under settlement. Its total cultivable area is 9,700 acres, of which 7,600 acres are cultivated. The irrigated area represents 74 per cent. of the whole, but in other *tahsīls* the 'wet-crop' area is not so large. A record-of-rights has been made in the Bori *tahsīl*. The principal crops are wheat, *jowār*, maize, and rice, with a small amount of tobacco grown in Sanjāwi. There has been a considerable extension of fruit gardens, and quantities of grapes, apricots, and pomegranates are produced. Melons of a superior kind, vegetables, and lucerne are cultivated in some parts. With the introduction of peace and security, the inhabitants are settling down to cultivation, which is gradually extending. Under an arrangement made in 1897, the Leghāri chief is bringing lands in Bārkhān under cultivation which had lain waste for ages owing to their exposure to Marri marauders. Most of the cultivators readily avail themselves of Government loans, but a few have religious scruples about paying interest. Between 1897–8 and 1903–4, Rs. 83,700 was advanced for agricultural improvements, and Rs. 56,000 for the purchase of seed and bullocks.

Much of the wealth of the District consists in its herds of cattle, sheep, and goats, which find ample grazing in the plains of Saharā, in Mūsā Khel, of Ranrkan in Bārkhān, of Thal and Chamālang in Duki, and round the base of Akhbarg in the Dumar country. The Mūsā Khels possess a comparatively larger number of camels and donkeys, while Bārkhān, Sanjāwi, and Bori have more sheep and goats. The Buzdār breed of donkeys is excellent. Some of the best horses in the country were to be had in Duki and Bārkhān in the early days of the British occupation; but many of the mares were bought up, and the breed has somewhat deteriorated. Government stallions are stationed at Loralai, Duki, and Bārkhān. The branded mares numbered 73 in 1904. Many camels, sheep, and goats are brought into the District by nomads at certain times of the year.

The principal sources of irrigation are streams, springs, and *kārez*. The Persian wheel is used in the Bārkhān *tahsīl*. Of the 475 revenue villages, 173 have permanent irrigation, 111 are partially irrigated, and 191 depend entirely on rainfall and floods. Besides the Sanjāwi *tahsīl*, the chief irrigated areas are the Duki and Lūni circles in the Duki *tahsīl*, and the Nāhar Kot circle in the Bārkhān *tahsīl*. The

Bori *tahsīl* possesses the largest number of *kārez*, 62. A flood-water channel was constructed by Government in 1903, at a cost of Rs. 40,000, to take off the flood-water of the Anambār to irrigate lands in the Thal plain.

The District contains about 55 square miles of Government forests. They include two tracts of juniper forest, covering 4,000 acres, in the Sanjāwi *tahsīl*; the Gadabār forest, chiefly *Acacia modesta*, of about 35 square miles on the Gadabār hill; and Sūrghund and Nargasi, with an area of 14 square miles, the former containing *Prunus eburnea* and some juniper, and the latter pistachio. Timber fellings are also regulated in the Kohār pistachio forest. A grass Reserve is maintained on the banks of the Narechi.

A coal seam in the Chamālang valley in Duki was examined by an officer of the Geological Survey in 1874, but he held out no hopes of a workable thickness being obtained. Traces of coal have also been noticed in the Sembar hills in the same *tahsīl*, and an extensive seam occurs within 1½ miles of Duki village.

Trade and communications.

Felts and felt coats (*khosā*), which are in daily use, are made by the women of the country. Mats and many other articles are woven from the dwarf-palm (*pīsh* or *dhorā*), also for domestic purposes. Bārkhān possesses an industry in the manufacture of carpets, saddle-bags, nose-bags, &c., in the *darī* stitch, which were once much admired; but the use of cheap aniline dyes has injuriously affected the trade, and the products are now inferior in quality. The artieles are sold locally and also exported to the Punjab. The District produces grain, *ghī*, and wool, of which the last two are exported. Trade is carried on either with Sind through Harnai, or with Dera Ghāzi Khān District. Transit dues, which formerly caused much hindrance to trade, have now been abolished.

The District possesses two excellent roads which intersect near Loralai: the Harnai-Fort Sandeman road, of which 76 miles lie in the District; and the Pishīn-Dera Ghāzi Khān road, of which 175 miles are within the District boundaries. The total length of communications consists of 288 miles of metalled or partially metalled roads, and 737 miles of unmetalled tracks and paths.

Famine.

Bori and Sanjāwi are best protected from famine. The Mūsā Khel and Bārkhān *tahsīls* and large portions of the Duki *tahsīl* depend on the rainfall for their cultivation, and are severely affected by its local failure. The Bārkhān *tahsīl* suffered from drought in 1840, in 1860, and also in 1883. Scarcity again occurred in 1897–8; and Rs. 20,000 from the Indian Famine Relief Fund was spent in the Duki and the Bārkhān *tahsīls* during that year and in 1900–1, chiefly in providing cattle and seed

grain. The grazing tax was remitted and advances were made in other parts. The drought continued until 1900, and revenue to the amount of Rs. 23,700 was suspended, nearly half of which represented the grazing tax of the Mūsā Khel *tahsīl*. Further advances were made in the following year to enable the people to recover. Between 1899 and 1901 about Rs. 69,000 was also spent on relief works from Imperial revenues.

Administration.

The District is composed of two units, officially known as the Duki and Loralai Districts, the former belonging to British Baluchistān and the latter to Agency Territories. For purposes of administration it is treated as the single charge of a Political Agent, who is also Deputy-Commissioner. It is divided into three subdivisions: BORI, which is in charge of an Assistant Political Agent; and MŪSA KHEL-BĀRKHĀN and DUKI, each of which is in charge of an Extra-Assistant Commissioner. A *tahsīldār* and a *naib-tahsīldār* are posted to each *tahsīl* except Sanjāwi, which is in charge of a *naib-tahsīldār* who has the powers of a *tahsīldār*.

The *tahsīldārs* and *naib-tahsīldārs* exercise both civil and criminal jurisdiction, appeals from their decisions lying to the officers in charge of subdivisions. The Political Agent and Deputy-Commissioner is the principal Civil and Sessions Judge. In 1903–4 the civil suits decided in the District numbered 273 and the criminal cases 62. Cases in which the people of the country are concerned are generally referred to councils of elders (*jirgas*) for an award according to tribal custom under the Frontier Crimes Regulation, the final order being passed by the Political Agent. Such cases numbered 1,652 in 1903–4, including 14 cases of murder, 32 of adultery, and 13 of adultery with murder, as well as 71 inter-Provincial cases with the Punjab.

In the time of Akbar the territory of Duki paid Rs. 120 in money, 1,800 *kharwārs* of grain, 12,000 sheep, and 15 Baluchi horses, besides contributing a military contingent; and under Afghān rule the same system appears to have been continued. Since the submission of the tribes to British rule, the revenue has been levied at a uniform rate of one-sixth of the gross produce. The Government share is generally determined by appraisement. The small *tahsīl* of Sanjāwi is under a fixed cash assessment for a period of ten years from 1901. Grazing tax is collected either by actual enumeration of the animals or in a lump sum fixed annually. In Mūsā Khel it forms the largest part of the revenue. It amounted for the whole District in 1903–4 to Rs. 28,600.

The receipts from land revenue and grazing tax, including the royalty levied on firewood, amounted in 1903–4 to 2·1 lakhs, which gives an incidence of Rs. 3 per head of population. The revenue from all sources in the same year was 2·3 lakhs.

In addition to the Loralai bazar fund, two other Local funds are maintained, the money raised being spent on sanitary establishments and watch and ward. The receipts in 1903-4 were Rs. 12,300, and the expenditure was Rs. 15,100.

The regiments at Loralai furnish cavalry detachments at Gumbaz and Murgha Kibzai, and infantry guards for the sub-treasuries at Hindubāgh and Kila Saifulla in Zhob District. Detachments from the cavalry regiment at Fort Sandeman are located at Mūsā Khel and Khān Muhammad Kot, and a small infantry detachment is stationed at Drug. Owing to the recent formation of the District, police arrangements are still in a state of organization. The police force is at present directly controlled by the police officer at Fort Sandeman. In 1904 it consisted of 5 deputy-inspectors and 112 men, including 14 horsemen, and held five posts. The levies numbered 392 men, of whom 7 were headmen and 224 mounted men. They were distributed in twenty-eight posts, and included 74 men employed on postal and telegraph service. The number of subsidiary jails or lock-ups was five, with accommodation for 125 male and 20 female prisoners. Convicts whose term exceeds six months are generally sent to Shikārpur in Sind.

In 1904 the number of primary schools was five, with 84 boys; the total cost was Rs. 1,800, of which Rs. 951 was paid from Provincial revenues, the balance being met from fees and Local funds. Elementary instruction, chiefly of a religious character, is also given to about 850 boys and 180 girls in mosque schools, the largest number being in the Bārkhān *tahsīl*.

Each of the five *tahsīls* possesses a dispensary. That at Sanjāwi is moved, during the summer months, to Ziārat in Sibi District. There is accommodation for 20 in-patients. The average daily attendance of such patients in 1903 was 19, and the total average daily attendance of all patients 208. The cost of the dispensaries was about Rs. 10,000, which was wholly met from Provincial revenues.

Vaccination is optional, and the majority of the people still resort to inoculation. It is only when small-pox breaks out that the services of the Government vaccinators are requisitioned. Statistics of vaccination are not available.

['Report on the Geology of Thal-Chotiāli and a part of the Marri Country,' *Records, Geological Survey of India*, vol. xxv, part i; Surgeon-Major O. T. Duke, *An Historical and Descriptive Report of the Districts of Thal-Chotiāli and Harnai* (Calcutta, 1883).]

Loralai Town (*Loralī*).—A cantonment and, since 1903, the head-quarters station of Loralai District, Baluchistān, situated in 30° 22′ N. and 68° 37′ E. It lies in the Bori *tahsīl*, 4,700 feet above sea-level, at the junction of the Harnai-Fort Sandeman and

Pishīn-Dera Ghāzi Khān roads, about 55 miles from Harnai railway station. The climate is moderate, but high winds frequently prevail. It was selected and occupied as a military station in 1886. The population (1901) numbers 3,561, including a regiment of native cavalry and one of native infantry. Conservancy is provided for by a bazar fund, the income of which in 1903-4 was Rs. 10,900 and the expenditure Rs. 13,800. In the same year the income of the cantonment fund, which receives one-third of the net revenue from the octroi levied for the bazar fund, amounted to Rs. 10,900. In 1901 a piped water-supply of 75,000 gallons per diem was provided, at a total cost of about $1\frac{1}{4}$ lakhs of rupees.

Lower Chindwin District.—*See* CHINDWIN DISTRICT, LOWER.

Lower Jhelum Canal.—*See* JHELUM CANAL, LOWER.

Lower Sutlej Inundation Canals.—*See* SUTLEJ INUNDATION CANALS, LOWER.

Luckeesarai (*Lakshmīsarai*).—Village in the head-quarters subdivision of Monghyr District, Bengal, situated in 25° 11′ N. and 86° 6′ E., on the west bank of the Kiul river. Population (1901), 6,199. A broad handsome railway bridge here crosses the Kiul river, and Kiul station on its east bank forms the junction of the chord-line of the East Indian Railway with the loop-line and with the South Bihār Railway. Numerous sculptures found at the neighbouring village of Rajaonā have been removed to the Indian Museum; the remains of a *stūpa* still exist.

Lucknow Division (*Lakhnau*). — Western Division of Oudh, United Provinces, lying between 25° 49′ and 28° 42′ N. and 79° 41′ and 81° 34′ E., with an area of 12,051 square miles. It extends from the damp submontane tract on the borders of Nepāl to the thickly populated area of Southern Oudh. The Division lies entirely between the Ganges on the south-west and the Gogra on the north-east. The head-quarters of the Commissioner are at LUCKNOW CITY. Population is increasing steadily. The numbers at the four enumerations were as follows: (1869) 5,315,583, (1881) 5,325,601, (1891) 5,856,559, (1901) 5,977,086. The Census of 1869 probably overstated the truth. The density, 496 persons per square mile, is higher than the Provincial average. The Division stands fourth in the United Provinces in respect of area and also in respect of population. Hindus formed 87 per cent. of the total in 1901, and Musalmāns nearly 13 per cent. There were 9,237 Christians, of whom 2,150 were natives. The Division includes six Districts, as shown in the table on the next page.

Kherī, which is the most northern District, includes a considerable area of forest land. The remaining Districts resemble those of the Gangetic plain generally. Hardoī, Unao, and Rāe Barelī lie north-east of the Ganges; Sītāpur is bounded on the north-east by the

Gogra; and Lucknow is situated in the centre of the Division. There are 44 towns and 10,150 villages. The largest towns are LUCKNOW CITY (population, 264,049, with cantonments), the most populous in the Provinces; SĪTĀPUR (22,557, with cantonments); and SHĀHĀBĀD (20,036). Lucknow, Shāhābād, Sītāpur, RĀE BARELĪ, KHAIRĀBĀD, and LAKHĪMPUR are the chief places of commercial importance. Lucknow was the capital of the kingdom of Oudh for nearly a century before annexation. DALMAU on the Ganges is the site of an important bathing-fair.

District.	Area in square miles.	Population, 1901.	Land revenue and cesses, 1903-4, in thousands of rupees.
Lucknow . .	967	793,241	10,24
Unao . . .	1,792	976,639	17,59
Rāe Barelī . .	1,748	1,033,761	17,88
Sītāpur . . .	2,250	1,175,473	18,67
Hardoī . . .	2,331	1,092,834	18,41
Kherī . . .	2,963	905,138	11,48
Total	12,051	5,977,086	94,27

Lucknow District (*Lakhnau*).—Central District in the Lucknow Division of the United Provinces, lying between 26° 30′ and 27° 9′ N. and 80° 34′ and 81° 13′ E., with an area of 967 square miles. In shape the District is an irregular oblong. It is bounded on the north-west by Hardoī and Sītāpur; on the north-east by Bāra Bankī; on the south-east by Rāe Barelī; and on the south-west by Unao. The general aspect is that of a level champaign, studded with villages, finely wooded, and in parts most fertile and highly cultivated. The two principal rivers are the Gumtī and Sai, and near these streams and their small tributaries the surface is broken by ravines, while the banks of the rivers are generally sandy. The Gumtī enters the District from the north, and after passing Lucknow city turns to the east and forms part of the boundary between Lucknow and Bāra Bankī. It is liable to sudden floods of great magnitude. Its chief tributary is the Behtā, a small perennial stream rising in Hardoī. The Sai forms part of the south-west boundary, running almost parallel to the Gumtī, and receiving the Nagwā or Lon and the Bākh.

Physical aspects.

The District exposes nothing but Gangetic alluvium. A boring for an artesian well was made to a depth of 1,336 feet, but passed only through sand with occasional beds of calcareous limestone.

The flora of the District is that of the Gangetic plain generally. There is very little jungle, the only considerable tract being in the north-east, where a *dhāk* (*Butea frondosa*) jungle forms a fuel and

fodder reserve. Groves are, however, numerous; and excellent mangoes, oranges, pomegranates, guavas, custard-apples, and *bers* (*Zizyphus Jujuba*) are grown.

There are few wild animals of any size. Jackal and hog are the commonest, while antelope and *nīlgai* are occasionally seen. Wild-fowl abound in the larger swamps. Fish are found in the rivers and tanks, and are also imported for sale in the city.

The climate of Lucknow is a mean between that of the cooler sub-montane Districts and the dry hot tracts south and west of it. Frosts are rare, and the maximum shade temperature is about 110°. Hot westerly winds are prevalent from March to May, often accompanied by dust-storms.

The annual rainfall averages 36 inches, and is on the whole evenly distributed; the tract along the Gumtī, however, appears to receive slightly more than other parts of the District. There are great variations from year to year, ranging from 13 inches in 1877 and 1880 to 70 inches in 1894.

History.

Legend relates that Lucknow city was founded by Lakshmana, brother of Rāma Chandra of Ajodhyā, and connects other places with episodes in the Mahābhārata. At the close of the Hindu period the country was, according to tradition, held by the Bhars, who were never conquered by the Kanauj Rājās. Many tombs are pointed out as those of heroes who fell in the raids of Saiyid Sālār Masūd. The Rājputs declare that their ancestors first entered the District in the eleventh or twelfth century, and in the thirteenth century the Musalmāns began to obtain a footing. In the fifteenth century Lucknow was included in the kingdom of Jaunpur, and the town first became of importance about 1478, when it is referred to as the capital of a small division. Under Akbar a *sarkār* of Lucknow was formed in the *Sūbah* of Oudh. The District, apart from the city, has no further history. It was included in the tract granted to Saādat Khān, the first Nawāb of Oudh; but Lucknow did not become the regular seat of government till after Asaf-ud-daula succeeded in 1775. In 1856 Oudh was annexed by the British owing to the misgovernment of the king, and a year later the Mutiny broke out. An account of the great rebellion will be found in the article on LUCKNOW CITY.

The District contains many ancient mounds which have never been examined. Local tradition assigns them to the Bhars, but some probably date from Buddhist times. The chief architectural monuments are the buildings at Lucknow city, dating from the close of the eighteenth century. The earlier edifices, though built of brick and stucco, are not unpleasing; but the later ones are disfigured by vulgarities of style copied from debased European models.

Lucknow contains 6 towns and 932 villages. At the four enumerations the numbers were: (1869) 778,195, (1881) 696,824, (1891) 774,163, and (1901) 793,241. The first Census probably overstated the actual population, but the District suffered severely from famine in 1877-8. There are three *tahsīls*—LUCKNOW, MALĪHĀBĀD, and MOHANLĀLGANJ—the head-quarters of each being situated at a place of the same name. The principal town is LUCKNOW CITY, the District head-quarters. The following table gives the chief statistics of population in 1901:—

Population.

Tahsīl.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Lucknow . .	360	3	327	454,896	1,264	+ 1·4	30,844
Malīhābād .	334	1	379	184,230	552	+ 4·9	3,417
Mohanlālganj .	273	2	226	154,115	565	+ 2·6	3,156
District total	967	6	932	793,241	820	+ 2·5	37,417

Hindus form 78 per cent. of the total, and Musalmāns more than 20 per cent. About one-seventh of the latter are Shiahs; this is a large proportion for India, due to the fact that the Oudh kings belonged to that sect. About 80 per cent. of the population speak Eastern Hindī and about 20 per cent. Western Hindī, chiefly Hindustāni.

The Hindu castes most largely represented are the Pāsīs (toddy-drawers and labourers), 84,000; Ahīrs (graziers and agriculturists), 77,000; Chamārs (tanners and cultivators), 75,000; Lodhas (cultivators) 57,000; Brāhmans, 46,000; Rājputs, 30,000; and Kurmīs (agriculturists), 22,000. Among Muhammadans are Shaikhs, 50,000; Pathāns, 26,000; Saiyids, 17,000; and Mughals, 12,000. Agriculture supports only 52 per cent. of the total, but about one-third of the population of the District is included in Lucknow city. Personal services support 9 per cent., cotton-weaving nearly 7 per cent., and general labour 5 per cent. The cultivating castes are chiefly Rājputs, Brāhmans, Ahīrs, Pāsīs, Chamārs, Lodhas, and Musalmāns, with a certain proportion of the more skilful castes of Kurmīs and Muraos.

Out of 7,247 Christians in 1901, natives numbered 2,150. The latter include 846 members of the Anglican communion, 562 Methodists, 363 Roman Catholics, and 152 Presbyterians. A Zanāna mission was established in 1852, the Church Missionary Society Mission in 1858, the American Methodist Mission in 1859, and a Wesleyan mission in 1863.

The District is the smallest in the United Provinces, and the only

variations in the agricultural conditions of different portions are due to diversity of soil. The bed of the Gumtī lies low, and in places contains belts of moist alluvial land, which are flooded in the autumn but produce excellent spring crops. The sandy land on the banks of this river produces only scanty crops of millet or pulse, except near the city where an abundant supply of manure can be applied to it. Beyond the sandhills the soil becomes a fertile loam, which gradually turns to heavy clay. The clay soil is interspersed with patches of barren *ūsar* and tanks or *jhīls*, but is the chief tract for rice.

Agriculture.

The tenures found are those common to the province of OUDH. About a quarter of the District is held by *talukdārs*, a quarter by *zamīndārs*, and the remainder by coparcenary bodies of *pattīdārs*. Sub-settled *mahāls* are not very numerous, but many small plots are held in under-proprietary right. The main agricultural statistics for 1903–4 are given below, in square miles:—

Tahsīl.	Total.	Cultivated.	Irrigated.	Cultivable waste.
Lucknow . . .	360	218	69	27
Malīhābād . .	334	213	73	60
Mohanlālganj . .	273	150	66	53
Total	967	581	208	140

Wheat is the chief food-crop, covering 143 square miles or 25 per cent. of the net area cultivated, the other important staples being gram (97), rice (93), pulses (79), *bājra* (68), and barley (53). Poppy covers 4 square miles, but very little sugar-cane, cotton, or oilseeds are grown.

The cultivated area increased by about 9 per cent. between 1870 and 1895, and during the last ten years the net area under cultivation has further risen by 7 per cent. There has been a striking increase in the area under rice and the coarser grains, such as gram, peas, *jowār*, and maize, on which the people chiefly subsist. But no decrease has been observed in the area sown with wheat, and the cultivation of the most valuable crops—poppy, cotton, and garden produce—shows a large relative increase. These results are due to an extension of the system of double-cropping. A small but steady demand exists for advances under both the Land Improvement and the Agriculturists' Loans Acts. Out of 4 lakhs advanced during the ten years ending 1900, 2·9 lakhs was taken in the famine year 1896–7. In the four years ending 1904, loans averaged Rs. 9,200.

The District contains very little pasture land, and the agricultural stock is of poor quality. The best cattle are imported from Northern Oudh. There is very little horse-breeding. Sheep and goats are kept in some numbers to supply meat and wool.

In 1903–4 the irrigated area was 208 square miles, of which 106 were supplied from wells, 93 from tanks or *jhīls*, and 9 from other sources. Lucknow is fairly protected in ordinary years, but is less secure than the neighbouring Districts of Southern Oudh. In seasons of drought the tanks and *jhīls* fail almost entirely. During the last few years there has been a very large increase in the number of wells, which add materially to the security of the District. The increase has been especially rapid since the famine of 1896–7, when Government advanced more than a lakh of rupees for the construction of wells. Water is generally raised by bullock power in leathern buckets; but in the south the spring-level is high enough for the use of levers. Tank-irrigation is most common in the south, and is carried on by the use of swing-baskets. A canal was constructed early in the nineteenth century from the Ganges to the Gumtī, but has never carried water except during the rains.

The chief mineral product is *kankar* or nodular limestone, which is used for metalling roads and for making lime. Saline efflorescences called *reh* are used in the manufacture of paper and in other arts.

Trade and communications.

There are few industries deserving mention outside LUCKNOW CITY. Common cotton cloth is the chief article produced in the small towns and villages; and dyers, bangle-makers, brass-workers, and potters supply local needs. The city is, however, celebrated for its cotton fabrics, cotton-printing, dyeing, embroidery, gold and silver work, ivory and wood-carving, ornamental pottery, and clay modelling. It also contains a number of factories and workshops, employing 5,300 hands in 1903.

The District imports grain, piece-goods, metals and hardware, sugar, and salt, and chiefly exports the manufactures of the city. Lucknow city is the principal centre of trade, but the extension of railways has caused small subsidiary markets to spring up at wayside stations. There is also an immense through traffic. MALĪHĀBĀD, Gosainganj, Mohanlālganj, and Chinhat are the principal trading towns outside the city; and Banthara is the chief cattle market.

Lucknow city is the most important railway centre in the United Provinces. It is the head-quarters of the Oudh and Rohilkhand Railway, the main line of which passes through the District from south-east to north-west. A branch from Cawnpore and the loop-line from Benares through Jaunpur and Fyzābād meet the main line at Lucknow. A narrow-gauge line worked by the same railway, which traverses the District from south-west to north-east, connects the Rājputāna-Mālwā Railway at Cawnpore with the Bengal and North-Western Railway, and thus gives through communication between Rājputāna, Northern Oudh, and Bengal. Another narrow-gauge line striking north from Lucknow connects the city with Bareilly through Sītāpur. Communications by road are also good. Out of 349 miles of roads, 142 are metalled. Most

of the latter are in charge of the Public Works department, but the cost of all but 52 miles is met from Local funds. Avenues of trees are maintained on 90 miles. The most important route is the road from Cawnpore to Fyzābād, passing through Lucknow city. Other roads radiate from the city to Sītāpur, Hardoī, Rāe Barelī, and Sultānpur.

Famine.

The District has suffered repeatedly from famine, and occasionally distress has been very acute. In 1784 the Nawāb instituted large relief works, and it is said that the works were kept open at night so that the respectable poor could earn food without being recognized. In 1837 the king attempted to stop exportation of grain and to fix prices. Under British rule there was some distress in 1860, and acute scarcity in 1865 and 1869. The famine of 1873 was of no intensity, but in 1877 the rainfall was only 13 inches and the autumn crop failed completely. Relief works were opened in 1878 and were largely attended. There was scarcity in 1880; but it was local, and prices did not rise. The rains failed in 1896 and famine was severely felt. By July, 1897, there were 107,000 persons in receipt of relief. The following harvest was, however, good, and the works were closed by the middle of September.

Administration.

The Deputy-Commissioner is usually assisted by two members of the Indian Civil Service, one of whom is City Magistrate, and by three Deputy-Collectors recruited in India. Two other Deputy-Collectors are engaged in the administration of various trusts, and in the management of Government property and the payment of pensions. A *tahsīldār* resides at the head-quarters of each *tahsīl*, and an officer of the Opium department is stationed in the District.

The civil courts include those of two Munsifs, a Subordinate Judge, and a Judge of the Small Causes Court. The Sessions Judge has jurisdiction also over the District of Bāra Bankī. The City Magistrate is entirely employed in the criminal work of the city and miscellaneous duties connected with the municipality and various charitable funds. The District is fairly free from crime, which chiefly consists of ordinary cases of theft and burglary, and Lucknow city is responsible for most of these.

At annexation in 1856 a District of Lucknow, consisting of ten *parganas*, was formed; but two of these were subsequently transferred to Bāra Bankī and one to Unao. A summary settlement was made in 1856, the records of which perished in the Mutiny of the following year. When order had been restored a second summary settlement was made in 1858, the revenue assessed amounting to 6·9 lakhs. The District was surveyed in 1862–3, and the first regular settlement was completed in 1869. The valuation of the land was made by applying assumed rates of rent, which were sometimes selected from those actually paid,

and sometimes averages of the actual rents. As in the rest of Oudh, the settlement courts had to decide on disputed claims to rights in land, and the judicial work was particularly heavy in Lucknow. The revenue demand amounted to 8 lakhs, subsequently reduced to 7·2 lakhs. This settlement was revised between 1893 and 1896 by successive District officers in addition to their regular work. There was no survey, and the assessment was based on the *patwāris'* maps and papers. The revenue fixed amounted to 8·8 lakhs, representing 47 per cent. of the net rental 'assets.' The incidence stands at Rs. 1·6 per acre, varying from about R. 1 to Rs. 1·8 in different *parganas*.

Collections on account of land revenue and revenue from all sources have been, in thousands of rupees:—

	1880–1.	1890–1.	1900–1.	1903–4.
Land revenue .	6.09	7,16	8,48	8,77
Total revenue .	10,81	16,50	21,30	24,97

There is only one municipality, LUCKNOW CITY; but five towns are administered under Act XX of 1856. Local affairs beyond the limits of these are in charge of the District board, which had in 1903–4 an income and expenditure of 1·2 lakhs. More than half of the income was derived from a grant from Provincial revenues, while Rs. 62,000 of the total expenditure was devoted to roads and buildings.

The District Superintendent of police usually has 2 Assistants, and commands a force of 6 inspectors, 116 subordinate officers, and 762 constables, besides 656 municipal and town police, and 1,192 rural and road police, distributed in 14 police circles. The Central jail contained a daily average of 1,336 prisoners in 1903, and the District jail 352. There is also a military prison in the cantonment.

Lucknow takes a high place as regards the literacy of its population, of whom 4·8 per cent. (8·2 males and 0·9 females) could read and write in 1901. Muhammadans (6 per cent.) are much in advance of Hindus (3·4 per cent.) in this respect. The number of public institutions fell from 135 in 1880–1 to 125 in 1900–1, but the number of pupils rose from 5,834 to 6,330. In 1903–4 there were 147 such institutions with 8,436 pupils, of whom 1,183 were girls, besides 69 private schools with 436 pupils. Nearly a third of the total number of pupils had advanced beyond the primary stage. Six colleges and schools were managed by Government, and 109 by the District and municipal boards. The total expenditure on education was 2·4 lakhs, towards which Government contributed Rs. 49,000 and Local and municipal funds Rs. 64,000, while the receipts from fees were Rs. 49,000. LUCKNOW CITY contains five colleges.

There are 21 hospitals and dispensaries, with accommodation for 391

in-patients. In 1903 the number of cases treated was 217,000, of whom 4,000 were in-patients, and 7,600 operations were performed. The expenditure amounted to Rs. 61,000. The Balrāmpur Hospital at Lucknow city is one of the finest in the United Provinces.

About 26,000 persons were successfully vaccinated in 1903–4, representing a proportion of 32 per 1,000 of population. Vaccination is compulsory only in the municipality and cantonment of Lucknow.

[P. Gray, *Settlement Report* (1898); H. R. Nevill, *District Gazetteer* (1904).]

Lucknow Tahsīl.—Central *tahsīl* of Lucknow District, United Provinces, comprising the *parganas* of Lucknow, Bijnaur, and Kākorī, and lying between 26° 39′ and 27° N. and 80° 39′ and 81° 6′ E., with an area of 360 square miles. Population increased from 448,461 in 1891 to 454,896 in 1901. There are 327 villages and three towns, LUCKNOW (population, 264,049), the District and *tahsīl* head-quarters, and KĀKORĪ (8,933) being the largest. The demand for land revenue in 1903–4 was Rs. 2,95,000, and for cesses Rs. 54,000. The density of population, 1,264 persons per square mile, is raised by the inclusion of the largest city in the United Provinces. Through the centre of the *tahsīl* flows the Gumtī, while the Sai and its tributary the Nagwā drain the south. Near the rivers the soil is sandy, but beyond the sandy dunes lie stretches of loam which deteriorate near the south into heavy clay, interspersed with patches of barren *ūsar* and *jhīls*. In 1903–4 the area under cultivation was 218 square miles, of which 69 were irrigated. Wells supply two-thirds of the irrigated area.

Lucknow City (*Lakhnau*).—Former capital of the province of Oudh and cantonment, situated in 26° 52′ N. and 80° 56′ E., on the banks of the Gumtī. It is the junction of several branches of the Oudh and Rohilkhand Railway with metre-gauge lines connecting the railway systems of Rājputāna and Northern Bengal, and the centre from which radiate important roads to the surrounding Districts. Distance by rail from Calcutta 666 miles, and from Bombay 885 miles. Lucknow is the largest city in the United Provinces, and the fourth largest in British India. Population is, however, decreasing. At the four enumerations

Population.

the numbers were: (1869) 284,779, (1881) 261,303, (1891) 273,028, and (1901) 264,049. In 1901 Lucknow contained 154,167 Hindus, 101,556 Musalmāns, and 7,247 Christians, of whom 5,097 were Europeans or Eurasians. The population within municipal limits was 240,649, while that of the cantonments was 23,400.

History.

The oldest part of Lucknow is the high ground within the Machchhī Bhawan fort, which is known to Hindus as the Lakshman Tīlā, from the tradition that a city was founded here by Lakshmana, brother of Rāma Chandra of Ajodhyā. Nothing

is known of the early history of the place; but after the Muhammadan conquest of India it was occupied by Shaikhs and Pathāns. The former became of some importance and built a fort, and according to one account the place derives its name from Likhna, the architect of the fort. In the fifteenth century one of the Shaikhs, who was celebrated for his piety, assumed the name of Shāh Mīnā. His tomb is still visited by pilgrims, who offer pieces of cloth, and it is specially resorted to when a man has a case pending in court. In 1526 Lucknow was occupied by Humāyūn, who abandoned it; but it was again taken by Bābar in 1528. A few years later Humāyūn defeated Mahmūd, brother of the last Lodī king, near here. Under the Sūri kings Lucknow began to rise into importance, and in the reign of Akbar it was the chief town of a *sarkār*. Its growth, however, like that of so many of the modern cities of India, was most rapid in the eighteenth and nineteenth centuries. It rose to greatness as the capital of the dynasty which established itself in Oudh during the decay of the Mughal empire, and spread its rule, not only over the modern province, but also through the neighbouring tracts now included in Rohilkhand, the Gorakpur and Benares Divisions, and the Allahābād Division north of the Ganges. Saādat Khān, the first Nawāb, had a residence at Lucknow, but seldom lived there. His son-in-law, Safdar Jang, built a fort at Jalālābād, three miles south of the city, to keep in check the Rājputs of Baiswārā, and also commenced the stone bridge over the Gumtī. He rebuilt the old stronghold of Lakshman Tīlā, which was henceforward known as the Machchhī Bhawan or 'fish palace,' from the fish which he was entitled to bear on his standard. Shujā-ud-daula, the third Nawāb, resided chiefly at Fyzābād; and under the reigns of the first three Nawābs Lucknow increased in size, but received few architectural embellishments.

With Asaf-ud-daula, the fourth Nawāb, a new political situation developed. The grandeur of Lucknow dates from his reign, and the works he constructed did not degenerate into the mere personal extravagances of his successors. He built bridges and mosques, as well as the Imāmbāra, the chief architectural glory of Lucknow, in which he lies buried, the adjacent mosque, the Rūmī Darwāza or Turkish Gate, and the magnificent palace which afterwards became the Residency. Outside the city lies the palace of Bibiāpur, built by him as a country-house and hunting-lodge. Numerous other handsome edifices in various parts of the city attest the greatness of this Nawāb, whose memory is still preserved in popular rhymes as the embodiment of liberality and magnificence. The Lucknow court had now reached its highest splendour. The dominions of the Nawāb extended over a wider area than at any earlier or later period. All the wealth of the state was devoted to the personal aggrandizement of its ruler and the accumula-

tion of the materials of Oriental pomp. The burden on the people was crushing, and when the English traveller, Tennant, passed through Oudh, he found almost everywhere a plundered and desolate country. Saādat Alī Khān, half-brother to Asaf-ud-daula, ceded a large territory to the British in return for their protection; and thenceforward the Nawāb and his successors, the kings of Oudh, degenerated into a mere *fainéant* dynasty of pleasure-seekers, whose works no longer partook of any national or utilitarian character, but ministered solely to the gratification of the sovereign. In the place of mosques, wells, forts, or bridges, palace after palace sprang up in succession, each more ungraceful and extravagant than the last. At the same time European influence began to make itself felt in the architecture, which grew gradually more and more debased from reign to reign. Awkward imitations of Corinthian columns supported Musalmān domes, while false venetian blinds and stucco marble replaced the solid brickwork of the earlier period. Palaces were erected for the kings, for their wives, and for their concubines, and hardly less palatial buildings to house the royal menageries. Saādat Alī Khān set the fashion by erecting the Farhat Bakhsh or 'giver of delight,' the chief royal residence till the last king, Wājid Alī Shāh, built the Kaisar Bāgh. He also built the portion of Lucknow which extends east of the Machchhī Bhawan, besides numerous small palaces, including the Dilkushā. In his time Lucknow reached very nearly its present size.

Ghāzī-ud-dīn Haidar (1814), son of Saādat Alī Khān, was the first of his line who bore the title of king. He built for his wives the two palaces called the Great and Lesser Chhattar Manzil ('umbrella' or 'dome palace'), and also erected fine mausoleums to his father and mother, and the Shāh Najaf, in which he himself was buried. Other memorials of this king are the Motī Mahal, the Mubārak Manzil, and the Shāh Manzil, where the wild-beast fights took place for which Lucknow was famous. He attempted to dig a canal for irrigation from the Ganges, but it proved a complete failure.

Nasīr-ud-dīn Haidar (1827), son of the last-named monarch, founded the Tārāwālī Kothī or 'observatory,' under the superintendence of Colonel Wilcox, his astronomer-royal. It contained several excellent instruments. On the death of Colonel Wilcox in 1847, the establishment was dismissed, and the instruments disappeared during the Mutiny. The building was the head-quarters of the Fyzābād Maulvi, Ahmadullah Shāh, during the rebellion, and the insurgent council frequently held its meetings here. It is now occupied as a bank. Nasīr-ud-dīn also built a great *karbala* in Irādatnagar, under which he lies buried.

Muhammad Alī Shāh (1837), uncle of Nasīr-ud-dīn Haidar, raised his own monument, the Husainābād Imāmbāra, a tawdry building in which the degeneration of architectural taste is distinctly marked. A

magnificent stone tank near the road from the Great Chhattar Manzil to Husainābād dates from this reign; and near it stands an unfinished building, called the Sāt Khanda or 'seven-storeyed tower,' though only the fourth storey was ever completed. Muhammad Alī Shāh also erected a mosque close to his mausoleum; but its courtyard and the buildings attached were never completed, and the mosque itself stood unfinished for many years.

Amjad Alī Shāh (1842), the fourth king, built his own mausoleum in Hazratganj, and laid down an iron bridge across the Gumtī. This bridge had been brought out from England by Ghāzī-ud-dīn Haidar, who, however, died before it arrived. His son, Nasīr-ud-dīn Haidar, directed that it should be put up opposite the Residency; but the operations for sinking wells to receive the piers proved unsuccessful, and the work was thus delayed till the accession of Amjad Alī.

Wājid Alī Shāh, the last king of Oudh (1847–56), bears the whole opprobrium for the erection of the Kaisar Bāgh, the largest, gaudiest, and most debased of all the Lucknow palaces. It was commenced in 1848 and finished in 1850 at a cost of 80 lakhs. Only the rear portion is now standing.

The annexation of OUDH is described under the account of that province. For a year the work of inaugurating the new administration was busily carried on under General Outram, the last Resident, and Mr. C. C. Jackson of the Civil Service. A couple of months before the outbreak at Meerut, Sir Henry Lawrence (March 20, 1857) had assumed the Chief Commissionership. The garrison at Lucknow then consisted of the 32nd British Regiment, a weak company of European Artillery, the 7th Native Cavalry, and the 13th, 48th, and 71st Native Infantry. In or near the city were also quartered two regiments of irregular local infantry, together with one regiment of military police, one of Oudh irregular cavalry, and two batteries of native artillery. The town thus contained nearly ten Indian soldiers to every European, or 7,000 to 750. Symptoms of disaffection occurred as early as the month of April, when the house of the surgeon to the 48th was burned down in revenge for a supposed insult to caste. Sir Henry Lawrence immediately took steps to meet the danger by fortifying the Residency and accumulating stores. On April 30 the men of the 7th Oudh Irregulars refused to bite their cartridges, on the ground that they had been greased with cows' fat. They were induced with some difficulty to return to their lines. On May 3 Sir Henry Lawrence resolved to deprive the mutinous regiment of its arms—a step which was not effected without serious delay.

On May 12 Sir Henry held a *darbār*, and made an impressive speech in Hindustāni, in which he called upon the people to uphold the British Government, as most tolerant to Hindus and Muham-

madans alike. Two days earlier the outbreak at Meerut had taken place, and a telegram brought word of the event on the morning after the *darbār.* On May 19 Sir Henry Lawrence received the supreme military command in Oudh. He immediately fortified the Residency and the Machchhī Bhawan, bringing the women and children into the former building. On the night of May 30 the expected insurrection broke out in Lucknow. The men of the 71st, with a few from the other regiments, began to burn the bungalows of their officers and to murder the inmates. Prompt action was taken, and early next morning the European force attacked, dispersed, and followed up for ten miles the retreating mutineers, who were joined during the action by the 7th Cavalry. The rebels fled towards Sītāpur. Although Lucknow thus remained in the hands of the British, by June 12 every station in Oudh had fallen into the power of the mutineers. The Chief Commissioner still held the cantonments (then situated north of the Gumtī) and the two fortified posts; but the symptoms of disaffection in the city and among the remaining native troops were unmistakable. In the midst of such a crisis, Sir Henry Lawrence's health unhappily gave way. He delegated his authority to a council of five, presided over by Mr. Gubbins, the Financial Commissioner; but shortly after he recovered sufficiently to resume the command. On June 11, however, the military police and native cavalry broke into open revolt, followed on the succeeding morning by the native infantry. On June 20 news of the fall of Cawnpore arrived; and on the 29th the enemy, 7,000 strong, advanced upon Chinhat, a village on the Fyzābād road, eight miles from the Residency. Sir Henry Lawrence marched out and gave the enemy battle at that spot. The result proved disastrous to our arms through the treachery of the Oudh artillery, and a retreat became necessary. The troops fell back on Lucknow, abandoned the Machchhī Bhawan, and concentrated all their strength upon the Residency. The siege of the enclosure began upon July 1. On the 2nd, as Sir Henry Lawrence lay on his bed, a shell entered the room, burst, and wounded him mortally. He lingered till the morning of the 4th, and then died in great agony. Major Banks succeeded to the civil command, while the military authority devolved upon Brigadier Inglis. On July 20 the enemy made an unsuccessful assault. Next day Major Banks was shot, and the sole command was undertaken by Inglis. On August 10 the mutineers attempted a second assault, which was again unsuccessful. A third assault took place on the 18th; but the enemy were losing heart as they found the small garrison so well able to withstand them, and the repulse proved comparatively easy.

Meanwhile the British within were dwindling away and eagerly expecting reinforcements from Cawnpore. On September 5 news

of the relieving force under Outram and Havelock reached the garrison by a faithful native messenger. On September 22 the relief arrived at the Alambāgh, a walled garden on the Cawnpore road held by the enemy in force. Havelock stormed the Alambāgh, and on the 25th fought his way against continuous opposition through the eastern outskirts of the city. On the 26th he arrived at the gate of the Residency enclosure, and was welcomed by the gallant defenders within. General Neill fell during the action outside the walls. The sufferings of the besieged had been very great; but even after the first relief it became clear that Lucknow could only be temporarily defended till the arrival of further reinforcements should allow the garrison to cut its way out. Outram, who now reassumed the command which he had magnanimously yielded to Havelock during the relief, accordingly fortified an enlarged area of the town, bringing many important outworks within the limits of defence; and the siege began once more till a second relieving party could set the besieged at liberty. Night and day the enemy kept up a continuous bombardment of our position, while Outram retaliated by frequent sorties.

Throughout October the garrison maintained its gallant defence, and a small party shut up in the Alambāgh and cut off unexpectedly from the main body also contrived to hold its dangerous post. Meanwhile Sir Colin Campbell's force had advanced from Cawnpore, and arrived at the Alambāgh on November 10. From the day of his landing at Calcutta Sir Colin had never ceased in his endeavours to collect an army to relieve Lucknow, by gathering together the liberated Delhi field force and the fresh reinforcements from England. On the 12th the main body threw itself into the Alambāgh, after a smart skirmish with the rebels. Sir Colin next occupied the Dilkushā palace, east of the city, and then moved against the Martinière, which the enemy had fortified with guns of position. After carrying the post he forded the canal, and on the 16th attacked the Sikandra Bāgh, the chief rebel stronghold. The mutineers, driven to bay, fought desperately, but before evening the whole place was in the hands of the British. As soon as Sir Colin Campbell reached the Motī Mahal, on the outskirts of the city proper, General Havelock came out from the Residency to meet him, and the second relief was successfully accomplished.

Even now, however, it was impossible to hold Lucknow; and Sir Colin Campbell determined, before undertaking any further offensive operations, to return to Cawnpore with his army, escorting the civilians, women, and children rescued from their long imprisonment in the Residency, with the object of forwarding them to Calcutta. On the morning of November 20, the troops received orders to march for the Alambāgh; and the Residency, the scene of so long and stirring

a defence, was abandoned for awhile to the rebel army. Before the final departure, Sir Henry Havelock died from an attack of dysentery. He was buried in the Alambāgh, without any monument, a cross on a neighbouring tree marking for a time his last resting-place. Sir James Outram, with 3,500 men, held the Alambāgh until the Commander-in-Chief could return to recapture the capital. The rebels used the interval for the fortification of their stronghold to the utmost of their knowledge and power. They surrounded the greater part of the city, for a circuit of 20 miles, with an external line of defences, extending from the Gumtī to the canal. An earthen parapet was raised behind the canal: a second line of entrenchments connected the Motī Mahal, the Mess-house, and the Imāmbāra; while the Kaisar Bāgh constituted the rebel citadel. Stockades and parapets closed every street; and loopholes in all the houses afforded an opportunity for defending the passage inch by inch. The computed strength of the insurgents amounted to 30,000 sepoys, together with 50,000 volunteers; and they possessed 100 pieces of ordnance, guns and mortars.

On March 2, 1858, Sir Colin Campbell found himself free enough in the rear to march once more upon Lucknow. He first occupied the Dilkushā, and posted guns to command the Martinière. On March 5 Brigadier Franks arrived with 6,000 men, half of them Gurkhas sent by the Rājā of Nepāl. Outram's forces then crossed the Gumtī, and advanced from the direction of Fyzābād, while the main body attacked from the south-east. After a week's hard fighting, from March 9 to 15, the rebels were completely defeated, and their posts captured one by one. Most of the insurgents, however, escaped. As soon as it became clear that Lucknow had been permanently recovered, and that the enemy as a combined body had ceased to exist, Sir Colin Campbell broke up the British Oudh army, and the work of reorganization began. On October 18, 1858, the Governor-General and Lady Canning visited Lucknow in state, and found the city already recovering from the devastation to which it had been subjected. Lucknow remained the capital of a separate administration till 1877, when the post of Chief Commissioner of Oudh was united with that of Lieutenant-Governor of the North-Western Provinces.

Description.

The city of Lucknow covers a vast area on the south of the Gumtī, with suburbs extending across the river. The large cantonment forms an irregular quadrilateral adjoining the south-east corner of the city. Up to the Mutiny, bazars reached to the river almost throughout the whole of its course on the northern boundary of the city; but a space has gradually been cleared, with an average breadth of about half a mile. Most of the buildings already mentioned lie in this clearing, and within the last few years have been enclosed in verdant lawns which have justly earned for Lucknow its

description as the City of Parks. On the extreme west lies the unfinished mosque of Muhammad Alī Shāh, known as the Jāma Masjid. It was intended to rival the great mosque at Delhi, but is remarkable only for its size and gaudy colour decoration, which has recently been renewed. The Husainābād buildings erected by the same king consist of two enclosures at right angles. One of these, which is now lined with shops, contains the tomb of Muhammad Alī Shāh's daughter, a poor model of the Tāj at Agra. The other, which is laid out as a garden adorned with stone water-channels, fountains, and badly executed statuary, contains the Imāmbāra, in which Muhammad Alī was buried. The buildings are richly endowed, the surplus income being devoted to charity. East of Husainābād, and extending to the Rūmī Darwāza, is a beautiful garden, called the Victoria Park, which was laid out in 1887, enclosing the Sāt Khanda, the house first occupied by Asaf-ud-daula when he transferred his government to Lucknow, the large tank built by Muhammad Alī Shāh, and a *bāradarī* constructed by the same king, which contains a series of portraits of the Nawābs and kings of Oudh. Close to the tank is a clock-tower of Moorish design, 221 feet in height and 20 feet square, which was built between 1880 and 1887, and contains a chime of bells. On the eastern border of the Park lies the finest group of buildings in Lucknow, including the Rūmī Darwāza, the great Imāmbāra, and a mosque, all of which were built by Asaf-ud-daula. The first of these is a massive gateway, popularly believed to be an imitation of the gate at Constantinople from which the Sublime Porte derives its name. It leads into the Machchhī Bhawan, in which are situated the other buildings. The great Imāmbāra consists of an immense hall, 162 feet long and 54 feet wide. On either side are verandas 27 feet wide, and at the ends octagonal apartments 53 feet in diameter. The whole building is covered with a roof of bricks set in concrete several feet thick, which stands without the thrust entailed by vaulting. No wood is used anywhere in the construction, which is built on very deep foundations. A plain slab marks the resting-place of the founder. In the same enclosure stands the beautiful mosque raised by the Nawāb. The Machchhī Bhawan also contains the mound known as the Lakshman Tīlā, now surmounted by a mosque built by Aurangzeb, and a fine schoolhouse has recently been erected south-east of the Imāmbāra. The mound occupied by the ruins of the Residency lies at a distance of half a mile south-east of the Machchhī Bhawan, being separated from the Gumtī by a road and open ground. At the time of the Mutiny bazars were situated close to the low wall surrounding it, but these have been cleared away. The shattered walls of the main block of buildings in which Sir Henry Lawrence received his fatal wound, Dr. Fayrer's house where he died, the noble banqueting hall used during the siege as a hospital, the cellar where the women and

children took refuge, and several other buildings are still standing, while high above all the topmost tower still rears its battered sides. Further decay has been prevented by carefully executed repairs, and the grounds have been levelled and turfed. In one corner, under the shade of many cypresses, are the tombs or cenotaphs of some 2,000 Europeans who perished during the Mutiny. The palaces of Saādat Alī Khān and Ghazī-ud-dīn Haidar lie east of the Residency, adjoining each other. Only portions remain of the vast Farhat Bakhsh. The part of this building which overlooks the river was constructed by General Claude Martin and sold by him to Saādat Alī Khān. It is now joined to the Great Chhattar Manzil built by his successor, and the whole building is used as a club. Other portions of the Farhat Bakhsh are the Lāl Bāradarī and the Gulistān-i-Iram, which are now the Provincial Museum. The former building was the throne-room of the Oudh kings; and in it a serious disturbance took place in 1837, when an attempt was made to prevent the accession of Muhammad Alī Shāh. A fine court for the Judicial Commissioner of Oudh has recently been completed opposite this building, with a chamber used for meetings of the Provincial Legislative Council. A short distance to the south are the stately tombs of Saādat Alī Khān and his wife, and behind them the Canning College and the large quadrangle forming the Kaisar Bāgh. The latter has already commenced to decay and one side has been removed. The other sides have been allotted to the *talukdārs* of Oudh as residences. East of these buildings lie the Tārāwālī Kothī, the Khurshed Manzil, called after the wife of Saādat Alī Khān who commenced it, the Motī Mahal, which also includes the Mubārak Manzil and the Shāh Manzil or arena, and the Shāh Najaf, where Ghāzī-ud-dīn Haidar is buried. A large horticultural garden then intervenes, on the east of which is the Sikandra Bāgh, where fierce fighting took place on the second relief. Another large public garden, called the Wingfield Park after a Chief Commissioner, lies on the east of the city, and south-east of this is situated the Martinière College. This bizarre erection, which was built by General Martin as his own residence during the time of Asaf-ud-daula, resembles a colossal Italian villa on an exaggerated scale. The founder's bones were buried within the Martinière to prevent its confiscation by the Nawāb, but were dug up and scattered during the Mutiny. The Dilkushā palace is situated in cantonments.

Viewed from a distance, Lucknow presents a picture of unusual magnificence and architectural splendour, which fades on nearer view into the ordinary aspect of a crowded Oriental town. Some of the most striking buildings, which look like marble in moonlight, are shown by the disillusioning sun to be degraded examples of stucco and brick. Flying buttresses to support nothing but one another, copper domes gilt from top to bottom, burnished umbrellas, and balustrades of burnt clay

form frequent features in the tawdry architecture which renders the distant aspect of Lucknow so bright and sparkling. Immediately after the Mutiny a wide glacis was cleared round the Machchhī Bhawan, and three military roads, radiating from this point as a centre, were cut right through the heart of the native quarter. The city itself contains shops of the ordinary style and a few large private residences. The civil station, which adjoins the eastern side of the city, has a fine thoroughfare lined with the shops of European tradesmen, called Hazratganj, at the end of which is the Lucknow residence of the Lieutenant-Governor.

Administration.

Lucknow is the head-quarters of the principal court in Oudh, the Inspectors-General of Civil Hospitals and of Jails, the Postmaster-General in the United Provinces, the Conservator of Forests in the Oudh Circle, the Commissioner of the Lucknow Division, an Executive Engineer, a Superintendent of Railway Police, and an Inspector of Schools. The Church Missionary Society, the American Methodists, the Wesleyan and the Zanāna Bible and Medical Missions have important stations here. There are ten hospitals and dispensaries for both sexes, besides three female hospitals. The magnificent hospital founded by the late Mahārājā of Balrāmpur and added to by the present Mahārājā is exceptionally well equipped.

The city has been administered as a municipality since 1862. A special Act was passed to regulate it in 1864, which remained in force till 1873, since which date it has been under the ordinary municipal law of the United Provinces. During the ten years ending 1901 the income and expenditure averaged 5·2 lakhs, including a loan from Government of 13·2 lakhs to meet the cost of a water-supply from the Gumtī. In 1903–4 the total income was 5·3 lakhs, chiefly derived from octroi (3·6 lakhs), sale of water (Rs. 38,000), water-rate (Rs. 26,000), and conservancy receipts (Rs. 22,000). The expenditure of 5·6 lakhs included 1·3 lakhs for conservancy, Rs. 76,000 repayment of loans and interest, Rs. 67,000 public safety, Rs. 50,000 maintenance of water-works, and Rs. 45,000 administration and collection. A drainage scheme is now under construction, and a scheme for electric tramways has been sanctioned.

The cantonment, which is the largest in the United Provinces, is garrisoned by British and Native regiments of both cavalry and infantry and by garrison and field artillery. The cantonment fund had an income and expenditure averaging Rs. 53,000 during the ten years ending 1901; in 1903–4 the income was Rs. 78,000 and the expenditure Rs. 74,000. Lucknow is the head-quarters of the Oudh and Rohilkhand Railway Volunteer Rifles, the Lucknow Volunteer Rifles, and the Oudh squadron of Light Horse.

Commerce.

The city is more noted for its manufactures than for general trade; but its industries have suffered from the changes brought about by British rule. Under the prodigal waste and lavish display of its latest kings Lucknow was a centre for the production of rich fabrics and costly jewellery[1]. The kings have departed, and their descendants and those of the nobles of the court who still inhabit the city live on pensions which are fast becoming subdivided to a vanishing point. Cotton fabrics are still manufactured of all grades, from the coarsest cloth to the finest muslin and cotton prints. An important industry connected with cotton is the famous *chikan* or embroidery in silk or cotton on muslin. The work affords employment to many women and children of good family who are now impoverished, and very tasteful articles are produced. Lucknow is also celebrated for embroidery with gold and silver thread, but the demand for this is decreasing. The silver work has some reputation and is largely sold to European visitors, while *bidrī* or damascening of silver on other metals has been revived within recent years. The brass and copper industry is still of importance, and vessels for use by Muhammadans are especially made. Wood-carving is still carried on, and there is a little carving in ivory. The potters of Lucknow produce various kinds of art-ware, some of which are distinctly good; while the clay modellers are pre-eminent in the whole of India. Their models of fruit and vegetables have a large sale among natives and are exported to Calcutta and Bombay, and clay figures representing various types of native life are wonderfully artistic. Minor products are tobacco, shoes, and perfumes.

There are some large industries worked on European lines. Two railway workshops employed 3,400 hands in 1903, while four large printing presses employed 930, a large paper-mill 526, an iron foundry 200, a brewery 156, and an ice and flour mill 84.

Education.

Lucknow is important as an educational centre. The chief institution is the Canning College, founded in 1864 and partly supported by the *talukdārs*, which contained 336 students in 1904, of whom 47 were in the Oriental department and 78 were studying law. There is also a school for the sons of the *talukdārs* and gentry, called the Colvin School. The Reid Christian College, which contains a business department and is managed by the American Methodist Mission, several other mission schools, a normal school, the Jubilee high school, and a number of schools under native management, may also be mentioned. The secondary schools contain nearly 2,000 pupils, and there are five primary schools with about 150 pupils. Lucknow city possesses more facilities for female education than any other place in the United Provinces. It contains a high school

[1] See W. Hoey, *Monograph on Trades and Manufactures* (1880).

for girls maintained by the American Mission with 150 pupils, of whom 18 were reading in college classes in 1904, while 600 girls are taught in a number of primary schools. The chief school for Europeans and Eurasians is the Martinière, which contains nearly 100 boys. It is partly supported by the endowments bequeathed by General Martin, but the fees amount to more than half a lakh annually. A girls' school, now in the Khurshed Manzil, which was founded in 1866, contains 75 pupils. Lucknow is also a centre of literary activity, and five English and eighteen vernacular newspapers and periodicals are published here. The former include an Anglo-Indian paper called the *Indian Daily Telegraph*, and the *Advocate*, which is the leading organ of native public opinion in the United Provinces, and is also published in a vernacular edition. The Newal Kishore Press is one of the most important publishing houses in India for Hindustāni literature.

[M. R. Gubbins, *Mutinies in Oudh* (1858); McLeod Innes, *Lucknow and Oudh in the Mutiny* (1902).]

Ludhiāna District.—District in the Jullundur Division of the Punjab, lying between 30° 34′ and 31° 1′ N. and 75° 22′ and 76° 24′ E., with an area of 1,455 square miles. It is bounded on the north by the Sutlej, which separates it from the District of Jullundur; on the east by Ambāla District and the Patiāla State; on the south by the territories of the chiefs of Patiāla, Nābha, and Māler Kotla; and on the west by the District of Ferozepore. In the south, several of its outlying villages are scattered among the States of Patiāla, Jīnd, Nābha, and Māler Kotla; while, on the other hand, in the east two or three groups of Patiāla villages lie within its territory. It is divided into two portions by the high bank which marks the ancient bed of the Sutlej. Beneath lies a half-deserted watercourse, called the Budha nullah, still full in all but the driest seasons, and once the main channel of the Sutlej. The principal stream of that river now runs farther north, leaving a broad alluvial strip, 2 to 6 miles in width, between its ancient and its modern beds. This strip, known as the Bet, forms the wider channel of the river, and is partly inundated after heavy rain. It is intersected in every direction by minor watercourses or nullahs, and, being composed of recent alluvium, is for the most part very fertile, but its eastern extremity has been injuriously affected by percolation from the Sirhind Canal. The uplands to the south of the high bank consist of a level plain, sloping gently to the south-west and broken only by some lines of sandhills which are very common in the Jangal, the south-western portion of the uplands; this tract is traversed throughout by the Sirhind Canal.

Physical aspects.

There is nothing of geological interest in the District, which is

situated entirely in the alluvium. It includes the extreme north-west corner of the Upper Gangetic plain, but to the south-west it approximates to the desert region. Trees are few, unless where planted; but the *rerū* (*Acacia leucophloea*) is frequent locally, and the *kīkar* (*Acacia arabica*), which is perhaps not aboriginal, is plentiful. The *ber* (*Zizyphus Jujuba*) is common in gardens and near homesteads.

Wolves are not uncommon. *Nīlgai*, antelope, and 'ravine deer' (Indian gazelle) are found throughout the southern part of the District, and hog in the rank grass near the Sutlej and Budha nullah.

The heat in May and June is intense, but no worse than in most parts of the Punjab plains. During the monsoon the air is damp and the climate relaxing, except in the Jangal with its dry climate and pure water; and this tract is free from the outbreaks of autumnal fever, which sometimes occur after heavy rains in September. The Bet is peculiarly liable to these epidemics, and enlarged spleen and anaemia due to malarial poisoning are there common.

The rainfall is normal for the Punjab plains, ranging from 29 inches per annum at Samrāla to 22 at Jagraon.

History.

The early history of the District is obscure. SUNET, near Ludhiāna, MĀCHHĪWĀRA, and Tihāra are all places of some antiquity, dating from the pre-Muhammadan period. The last, which lies in the north-west corner of the District, is identified by tradition with the Vairāta of the Mahābhārata, and was a place of some importance; but the ancient site has long been washed away by the Sutlej. The town of LUDHIĀNA dates only from the Lodī period, and the principality of RAIKOT originated in a grant of the Saiyid kings of Delhi. Under Akbar the tract formed a part of the *sarkār* of Sirhind, but the later Mughals leased the western part of the present District to the Rais of Raikot. Early in the eighteenth century they became semi-independent; and though the imperial forces successfully withstood Ahmad Shāh near Khanna in 1747, his subsequent invasions so weakened the Mughal power that the Rais were suffered to take possession of Ludhiāna town in 1760. Meanwhile the Sikhs had become a political power, especially on the south and south-west borders of the District; and after their capture of Sirhind the Samrāla *tahsīl* fell into the hands of Sikh leaders, while the Rais retained most of the Ludhiāna and Jagraon *tahsīls*. In 1798 the Rai, a minor, was attacked by the Sikhs under Bedi Sāhib Singh of Una, who invested Ludhiāna, but raised the siege when the Rai called in George Thomas. Finally, in 1806, Ranjīt Singh crossed the Sutlej on his first expedition against the Cis-Sutlej chiefs, and stripped the Rais of their possessions, leaving a couple of villages for the maintenance of two widows, who were the only remaining representatives of the ruling family.

In 1809, after Ranjīt Singh's third invasion, a treaty was concluded between him and the British Government, by which his further conquests were stopped, although he was allowed to retain all territories acquired in his first two expeditions. At the same time, all the CIS-SUTLEJ STATES that had not been absorbed were taken under British protection. In the same year (1809) a cantonment for British troops was placed at Ludhiāna, compensation being made to the Rājā of Jīnd, in whose possession it then was. In 1835, on the failure of the direct line of the Jīnd family, a tract of country round Ludhiāna town came into British possession by lapse, and this formed the nucleus of the present District.

On the outbreak of the first Sikh War, Ludhiāna was left with a small garrison, insufficient to prevent part of the cantonments being burnt by the chief of Lādwa or to oppose the passage of the Sutlej by Ranjodh Singh. Sir Harry Smith threw some 4,000 men into the place, after losing nearly all his baggage at the action of Baddowāl. This reverse was, however, retrieved by the battle fought at ALĪWĀL, close to the Sutlej, in which Ranjodh Singh was driven across the river, and the upper Sutlej cleared of the enemy.

On the conclusion of the first Sikh War in 1846, the District assumed very nearly its present limits, by the addition of territory annexed from the Lahore government and its adherents south of the Sutlej. Since the British occupation, the town of Ludhiāna has grown in wealth and population, but its history has been marked by few noticeable events. The cantonment was abandoned in 1854. During the Mutiny in 1857 an unsuccessful attempt was made by the Deputy-Commissioner, Mr. Ricketts, with a small force, to stop the rebellious sepoys from Jullundur on their way to Delhi; but, with the assistance rendered by the chiefs of Nābha and Māler Kotla, he was able to prevent an outbreak in the turbulent and disaffected town of Ludhiāna. In the villages the Muhammadan Gūjars were the only people to show signs of disaffection, the Hindu and Sikh Jats remaining steadfastly loyal. In 1872 occurred an outbreak of the fanatical sect of Kūkas, 150 of whom, starting from Bhaini in this District, made a raid upon Malaudh and the Muhammadan State of Māler Kotla. No adherents joined them, and the outbreak was at once suppressed; Rām Singh, the leader of the sect, was deported from India. Since the first Afghān War (1838–42), Ludhiāna town has been the residence of the exiled family of Shāh Shujā.

Besides the ruins of Sunet above mentioned there are no antiquities of importance. Under the Mughal emperors the imperial road from Lahore to Delhi ran through the District, and is marked by *kos minārs* and by a large *sarai*, built in the reign of Aurangzeb, at Khanna.

Population.

The population of the District at the last four enumerations was: (1868) 585,547, (1881) 618,835, (1891) 648,722, and (1901) 673,097, dwelling in 5 towns and 864 villages. The District is divided into three *tahsīls*—LUDHIĀNA, JAGRAON, and SAMRĀLA—the head-quarters of each being at the place from which it is named. The towns are the municipalities of LUDHIĀNA, the head-quarters of the District, JAGRAON, KHANNA, RAIKOT, and MĀCHHĪWĀRA.

The following table shows the chief statistics of population in 1901:—

Tahsīl.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Ludhiāna . .	685	1	432	333,337	488.0	+ 2.9	16,443
Samrāla . .	291	2	263	154,995	532.6	− 2.4	7,848
Jagraon . .	418	2	169	184,765	443.1	+ 11.1	7,605
District total	1,455	5	864	673,097	462.6	+ 3.8	31,896

NOTE.—The figures for the areas of *tahsīls* are taken from the revenue returns. The total District area is that given in the *Census Report*.

Hindus number 269,076, or 40 per cent. of the total; Muhammadans, 235,937, or 35 per cent.; and Sikhs, 164,919, or 24 per cent. The language of the District is Punjābi.

The tribes and castes are distinguished by no local peculiarities. Jats or Jāts number 235,000, or 35 per cent. of the total, 132,000 being Sikhs and 77,000 Hindus. If the Jats are the best peasantry in India, the Jats of the MĀLWĀ (i.e. those of Ferozepore and Ludhiāna) possess in a greater degree than any other branch of the tribe the qualities which have earned for them this distinction. They have a finer physique, and as farmers are more prudent and thrifty, than their brethren in Lahore and Amritsar. The Rājputs (29,000) are undoubtedly the oldest of the agricultural tribes now found in the District. They are almost all Muhammadans, and present a striking contrast to the Sikh and Hindu Jats, being indolent and thriftless cultivators. The Gūjars (33,000) are mainly Muhammadans, inferior to the Jats in general ability, and as a tribe turbulent, lawless, and discontented. Lastly come the Ąrains (32,000), who are invariably Muhammadans, excelling as market-gardeners and making more than any one else out of a small plot of land, but incapable of managing large areas. The religious castes include Brāhmans (25,000), who generally live on the Jats of the uplands, and the Muhammadan Madāris (6,000). About 17,000 persons (including the Madāris) are classed as Fakīrs. The Sūds (200) deserve mention, as Ludhiāna is

considered the head-quarters of their tribe. They are intelligent, and take readily to clerical service under Government. Among the artisan and menial castes may be mentioned the Chamārs (leather-workers), 63,000; Chūhrās (scavengers), 22,000; Jhīnwars (water-carriers), 18,000; Kumhārs (potters), 10,000; Lohārs (blacksmiths), 9,000; Julāhās (weavers), 17,000; Mochīs (cobblers), 9,000; Nais (barbers), 12,000; Sonārs (goldsmiths), 7,000; Tarkhāns (carpenters), 21,000; and Telis (oil-pressers), 14,000. About 55 per cent. of the total population are returned as agricultural.

Ludhiāna is the chief station in India of the American Presbyterian Mission. Founded here in 1834, the mission has established many branches throughout the Punjab and United Provinces, and maintains a large number of dispensaries and schools, among which the Forman Christian College at Lahore is the best known. In 1901 the District contained 415 native Christians.

Agriculture.

The soil of the Sutlej riverain is a stiff moist loam, constantly fertilized in the immediate neighbourhood of the river by the silt deposited by it. In the uplands south of the high bank every variety of soil is found, from stiff clay to the lightest of sand, the lighter soils prevailing along the high bank and to the south-west of the District, while those of the eastern parts are much stiffer. Where there is no irrigation, the light sandy loam is the safest soil; although with copious rain its yield is much less than that of the stiffer soils, it is far more able to resist drought.

The District is held almost entirely by communities of peasant proprietors, estates belonging to large landowners covering only about 24 square miles.

The area for which details are available from the revenue records of 1903–4 is 1,394 square miles, as shown below:—

Tahsīl.	Total.	Cultivated.	Irrigated.	Cultivable waste.
Ludhiāna . .	685	572	148	57
Samrāla . .	291	245	90	19
Jagraon . .	418	376	71	17
Total	1,394	1,1[illegible]3	309	93

The principal crops of the spring harvest are wheat and gram, the areas under which were 364 and 285 square miles in 1903–4. Barley covered 32 square miles and rapeseed 35 square miles. Maize is the chief crop of the autumn harvest, with 115 square miles; pulses covered 145 square miles, great millet 47 square miles, and spiked millet 4,110 acres. Sugar-cane covered only 18 square miles, but it is the most valuable autumn crop.

During the twenty years ending 1901 the cultivated area increased by more than 30,000 acres, the increase being chiefly due to the construction of the Sirhind Canal. As no more canal water can be spared for this District, the cultivated area, which now amounts to more than four-fifths of the total, is not likely to increase much farther. Loans under the Land Improvement Loans Act are not very popular, about Rs. 2,000 having been advanced during the five years ending 1904.

Ludhiāna is not a great cattle-breeding District, owing to the small area available for grazing, and a large proportion of the cattle are imported from the breeding tracts to the south. The horses of the Jangal tract, in which part of the Jagraon *tahsīl* lies, are a famous breed descended from Arab stallions kept at Bhatinda by the Mughal emperors. The District board maintains 4 horse and 11 donkey stallions. Sheep and goats are kept in almost every village, and camels in the Jangal tract. A large number of ducks and geese are reared in the old cantonment for the Simla market.

Of the total area cultivated in 1903–4, 309 square miles, or 26 per cent., were classed as irrigated. Of this area, 219 square miles were irrigated from wells, 513 acres from wells and canals, 89 square miles from canals, and 103 acres from streams and tanks. In addition, 66 square miles, or 6 per cent., were subject to inundation from the Sutlej. The canal-irrigation is from the SIRHIND CANAL. The main line traverses the Samrāla *tahsīl* without irrigating it, and then below Doraha (in Patiāla State) gives off the Abohar and Bhatinda branches; the former passes through the Ludhiāna and Jagraon *tahsīls*, supplying them from six distributaries, while the extreme south of the District is watered by a distributary of the Bhatinda branch. Wells in the uplands are of masonry, worked by bullocks on the rope-and-bucket system; in the riverain tract, owing to the nearness of the water to the surface, lever and unbricked wells are largely used. In 1903–4 the District contained 10,481 masonry wells, and 362 unbricked and lever wells and water-lifts.

The only forests are two plantations of *shīsham* (*Dalbergia Sissoo*) on the banks of the Sutlej, 'reserved' under the Forest Act, with an area of 197 acres. There are also 179 acres of forest land under the District board. *Kankar* or nodular limestone is found in many places.

Trade and communications.

The chief industry is the weaving of shawls, known as Rāmpur *chādars*, from the wool of the Tibetan goat and other fine wools. The industry is chiefly carried on by a colony of Kashmīris, who in 1833 migrated from Kashmīr on account of a famine, and settled in Ludhiāna town, where shawls used to be made until the trade was killed by the Franco-German War. Cotton stuffs are produced largely, and Ludhiāna is

famous for its turbans, which are imported from Hoshiārpur and embroidered in the town. Many regiments of the Indian army are supplied with turbans from Ludhiāna. Check cloths known as *gabrūns* are also made in large quantities from English and American yarns. Ivory billiard-balls are turned at Ludhiāna and Jagraon. The sugar industry is important, and a great deal of oil is expressed and exported. The District possesses two factories for ginning cotton, and two flour-mills. Both the ginning factories and one of the flour-mills are at Khanna, and the other flour-mill is at Ludhiāna town. The number of employés in the ginning factories in 1904 was 145, and in the flour-mills 44.

There is a large export of wheat to Karāchi, and of rapeseed, oil, maize, millets, and pulses to the United Provinces and Bengal; woollen and cotton goods are exported all over India. The chief imports are piece-goods, cotton yarn, sugar from the Jullundur Doāb, and iron, salt, brass and copper vessels, and barley and inferior grains from the Native States to the south.

The main line of the North-Western Railway passes through Ludhiāna town, from which place the Ludhiāna-Dhūrī-Jākhal Railway (also broad gauge) runs to Dhūrī on the Rājpura-Bhatinda line and Jākhal on the Southern Punjab Railway. A line connecting Ludhiāna with Ferozepore, Fāzilka, and M'Leodganj on the Southern Punjab Railway has recently been opened. The grand trunk road passes through the District by the side of the main line of railway, and an important metalled road runs from Ludhiāna town via Ferozepore to Lahore. The total length of metalled roads is 165 miles and of unmetalled roads 207 miles; of the former, 75 miles are under the Public Works department and the rest under the District board. The main line and Abohar branches of the Sirhind Canal are navigable, as is the Sutlej during the rains. The Sutlej is crossed by twelve ferries.

Famine.

The District suffered, like the rest of the country, in the *chālīsa* famine of 1783, and famines occurred in 1813 and 1833. In 1861 and 1869 there was considerable scarcity, and Rs. 6,000 and Rs. 7,000 respectively was spent on famine relief. Ludhiāna was unaffected by the scarcity of 1878. The opening of the Sirhind Canal has made the District secure against drought, and food-grains were exported during the famines of 1897 and 1900. The area of crops matured in the famine year 1899–1900 amounted to 72 per cent. of the normal.

Administration.

The District is in charge of a Deputy-Commissioner, aided by four Assistant or Extra-Assistant Commissioners, of whom one is in charge of the District treasury. It is divided into the three *tahsīls* of LUDHIĀNA, SAMRĀLA, and JAGRAON, each under a *tahsīldār* assisted by a *naib-tahsīldār*.

The Deputy-Commissioner as District Magistrate is responsible for criminal justice. The civil judicial work is under a District Judge, subordinate to the Divisional Judge of the Ambāla Civil Division, who is also Sessions Judge. There are four Munsifs, two at head-quarters and one at each outlying *tahsīl*. There are nine honorary magistrates. The crime of the District presents no features of special interest.

Under Akbar the District formed part of the Sirhind division or *sarkār*. The revenue system was elaborate, being based on uniform measurements of the land and a careful classification of soils. Produce estimates were made, and the Government share fixed at one-third of the gross out-turn. Under Akbar's successors, and still more under the Sikhs, revenue assessment degenerated into a system of direct or vicarious extortion. The government, when it was strong enough, and its lessees when it was not, were restrained in their exactions only by the fear of losing their cultivators altogether. A summary assessment was made in 1847–9, a reduction varying from 3 to 6 annas in the rupee being allowed on the existing demand. The regular settlement further reduced the demand by 11 per cent., the amount fixed in 1850 being 9·3 lakhs. This assessment worked well. Despite two periods of scarcity the revenue was punctually paid, and in no case were coercive measures found necessary. Transfers of land were few and credit remained generally good. The current settlement, carried out in 1879–83, was based on an estimated rise since 1860 of 50 per cent. in prices, and an increase of 8 per cent. in cultivation; but the proportion of the 'assets' taken was one-half instead of two-thirds, and the enhancement amounted to 18 per cent. The revenue rates average Rs. 2–7 (maximum Rs. 4, minimum Rs. 1–6) on irrigated land, and Rs. 1–9 (maximum Rs. 2–10, minimum 8 annas) on unirrigated. The demand for the first year was 10·9 lakhs, including 1·6 lakhs *jāgīr* revenue; and in 1903–4, including cesses, it amounted to over 12·4 lakhs. The average size of a holding cultivated by an owner is 3·2 acres, by an occupancy tenant 1·9, and by a tenant-at-will 1·6 acres.

The collections of land revenue alone and of total revenue are shown below, in thousands of rupees :—

	1880–1.	1890–1.	1900–1.	1903–4.
Land revenue . .	7,96	9,24	9,33	9,50
Total revenue . .	10,22	12,43	14,40	14,40

The District contains five municipalities: LUDHIĀNA, JAGRAON, KHANNA, RAIKOT, and MĀCHHĪWĀRA. Outside these, local affairs are managed by a District board, whose income in 1903–4 was Rs. 1,35,000, and expenditure Rs. 1,47,000. Education is the principal item of local expenditure.

The regular police force consists of 508 of all ranks, including 117 municipal police, under a Superintendent, who usually has three inspectors to assist him. The village watchmen number 917. There are 12 police stations, 2 outposts, and 16 road-posts. The District jail at head-quarters has accommodation for 318 prisoners.

The District stands fourth among the twenty-eight Districts of the Province in respect of the literacy of its population. In 1901 the proportion of literate persons was 4·7 per cent. (8·3 males and 0·1 females). The number of pupils under instruction was 3,977 in 1880–1, 8,875 in 1890–1, 10,825 in 1900–1, and 8,763 in 1903–4. In the last year the District possessed 19 secondary, 104 primary, and 2 special (public) schools, and 8 advanced and 73 elementary (private) schools, with 633 girls in the public and 351 in the private schools. The comparatively high standard of education is largely due to the energy of the missionaries. The two mission high schools at Ludhiāna, one of them a boarding-school, are aided by Government. There are fifteen middle schools throughout the District, including one for girls at Gujarwāl. The District board maintains a technical school, teaching up to the middle standard, at Ludhiāna. The North India School of Medicine for Christian Women gives professional teaching. The total expenditure on education in 1903–4 was 1·1 lakhs, of which District funds supplied Rs. 25,000 and municipal funds Rs. 18,000. Government grants came to Rs. 5,000, and fees brought in Rs. 28,000.

Besides the civil hospital and branch dispensary at Ludhiāna town, the District has six outlying dispensaries. At these institutions 103,764 out-patients and 1,336 in-patients were treated in 1904, and 5,206 operations were performed. The expenditure was Rs. 20,000, of which about half came from municipal funds.

The number of successful vaccinations in 1903–4 was 12,090, representing 18 per 1,000 of the population.

[H. A. Rose, *District Gazetteer* (in press); T. G. Walker, *Settlement Report* (1884), and *The Customary Law of the Ludhiāna District* (1885).]

Ludhiāna Tahsīl.—*Tahsīl* of Ludhiāna District, Punjab, lying on the south bank of the Sutlej, between 30° 34′ and 31° 1′ N. and 75° 36′ and 76° 9′ E., with an area of 685 square miles. The population in 1901 was 333,337, compared with 323,700 in 1891. The town of LUDHIĀNA (population, 48,649) is the *tahsīl* head-quarters, and there are 432 villages. The land revenue and cesses in 1903–4 amounted to 5·8 lakhs. The northern portion lies in the Sutlej lowlands, and the southern in the upland plain irrigated by the Abohar and Bhatinda branches of the Sirhind Canal.

Ludhiāna Town.—Head-quarters of the District and *tahsīl* of Ludhiāna, Punjab, situated in 30° 56′ N. and 75° 52′ E., on the grand

trunk road. It is the junction of the North-Western, Ludhiāna-Dhūrī-Jākhal, and Ludhiāna-Ferozepore-M'Leodganj Railways; distant by rail from Calcutta 1,148 miles, from Bombay 1,215, and from Karāchi 884. Population (1901), 48,649. The town is connected by metalled roads with Jagraon (24 miles) and Samrāla (21 miles). It was founded in 1481 by two Lodī Pathāns, from whom it took its name of Lodiāna, corrupted into Ludhiāna. It was the seat of government for this part of the empire under the Lodīs, but under the Mughals was only the head-quarters of a *mahāl* in the *sarkār* of Sirhind, though it continued to be a place of importance. It passed into the possession of the Rais of Raikot in 1760, and in 1806 was taken by Ranjīt Singh, who gave it to his uncle, Rājā Bhāg Singh of Jīnd. Land west of the town was allotted to the British in 1809 for a cantonment, which was up to 1838 the outpost on the Sutlej frontier. The town and surrounding country escheated on the death of Rājā Sangat Singh of Jīnd in 1835. Ludhiāna was in 1842 fixed on as the residence of the exiled family of Shāh Shujā. The cantonment was abandoned in 1854. The fort, built on the site of that constructed by the original founders, owes its present shape to Sir D. Ochterlony.

The municipality was created in 1867. The receipts and expenditure during the ten years ending 1902–3 averaged Rs. 92,800 and Rs. 92,600 respectively. In 1903–4 the income was 1·2 lakhs, the chief source being octroi (Rs. 92,000); while the expenditure of 1·1 lakhs included conservancy (Rs. 12,000), education (Rs. 24,000), medical (Rs. 10,000), public safety (Rs. 15,000), and administration (Rs. 18,000). Ludhiāna is famous for its manufacture of *pashmīna* shawls, which was introduced by some Kashmīri immigrants in 1833. Cotton fabrics are also largely woven, checks and *gabrūns* being made in considerable quantities. Embroidery is largely carried on. The Ludhiāna turbans are also famous, and a certain amount of ivory-turning is carried on, including the manufacture of billiard-balls. The town stands next to Amritsar in the excellence of its dyeing of wool and silk. It is an important centre for ornamental woodwork and furniture, and also a large grain mart. A flour-mill has recently been established, which in 1904 gave employment to 14 hands. The principal educational institutions are the four Anglo-vernacular high schools: one maintained by the municipality, the management of which was taken over by the Educational department in 1904, two by the mission, and the Islāmiya school. Ludhiāna has been since 1834 the head-quarters of the American Presbyterian Mission, which, in addition to the schools mentioned, maintains the North India School of Medicine for Christian Women and a printing press. There is a civil hospital in the town, with a branch dispensary.

Lugāsi.—Petty *sanad* State in Central India, under the Bundelkhand Agency, with an area of about 47 square miles. It lies between the Hamīrpur District of the United Provinces and the States of Chhatarpur and Charkhārī. Population (1901), 6,285. The chief is a Bundelā Rājput, and the original grant was made to Dīwān Sālim Singh, an adopted son of Hirde Sāh, son of Chhatarsāl of Pannā. When the British became paramount in the early years of the nineteenth century, Dīwān Dhīraj Singh, son of Sālim Singh, was in possession of seven villages, which were confirmed to him by a *sanad* granted in 1808, he on his part executing the usual deed of allegiance. In 1814 Dhīraj Singh, who was in ill-health, abdicated in favour of his second son, Sardār Singh, as the eldest son, Padam Singh, had revolted, and had only submitted on the arrival of a British force. In 1857 Sardār Singh's territories were laid waste by the mutineers on account of his fidelity to the British Government. For his loyalty at that time he was rewarded in 1860 with a *jāgīr* of four villages, yielding an income of Rs. 2,000 a year, the title of Rao Bahādur, and a *khilat* worth Rs. 10,000. The present chief, Dīwān Chhatrapati Singh, succeeded in 1902, and is being educated at the Daly College, Indore, the State being under superintendence. The State consists of 17 villages, and has a cultivated area of 9 square miles and a revenue of Rs. 20,000. The chief town, Lugāsi, is situated in 25° 5′ N. and 75° 35′ E., 8 miles from Nowgong on the Nowgong-Bāndā road. Population (1901), 1,786.

Lugu.—Detached hill south of the central plateau of Hazāribāgh District, Bengal, situated in 23° 47′ N. and 85° 42′ E., in the head-quarters subdivision. The northern face has a bold scarp 2,200 feet in height; and the highest point is 3,203 feet above the sea.

Luhit.—A name which is sometimes applied to the BRAHMAPUTRA in part of its course through Assam, and more particularly to the channel which separates the Mājuli island from Lakhimpur District.

Lumding.—Railway junction in Nowgong District, Eastern Bengal and Assam, situated in 25° 45′ N. and 93° 11′ E., where the Assam Valley branch of the Assam-Bengal Railway meets the hill section which connects the Brahmaputra Valley with Chittagong. Prior to the opening of the railway, the place was buried in dense tree jungle; but a considerable area of land has now been cleared, and the railway head-quarters of the Assam branch have been moved to this spot. The line on either side of Lumding passes through miles of almost uninhabited country, so that there is at present little local trade.

Lūnāvāda State (or Lūnāwāra).—State in the Political Agency of Rewā Kāntha, Bombay, lying between 22° 50′ and 23° 16′ N. and 73° 21′ and 73° 47′ E., with an area of 388 square miles. It is bounded on the north by the Rājputāna State of Dungarpur; on

the east by Sunth and Kadāna States of Rewā Kāntha; on the south by the Godhra *tāluka* of the District of the Pānch Mahāls; and on the west by Idar State (Mahī Kāntha) and Bālāsinor State (Rewā Kāntha). Lūnāvāda is irregular in shape, and has many outlying villages, the territory being much intermixed with that of Bālāsinor and with the British Pānch Mahāls. The extreme length from north to south is 34 miles, and the extreme breadth from east to west 25 miles. The Mahī flows through it. The climate is somewhat cooler than in the neighbouring parts of Gujarāt.

The chief is descended from a Rājput dynasty that ruled at Anhilvāda Pātan, and his ancestors are said to have established themselves at Vīrpur in 1225. In 1434 the family removed to Lūnāvāda, having in all probability been driven across the Mahī by the increasing power of the Muhammadan kings of Gujarāt. Lūnāvāda was tributary both to the Gaikwār and to Sindhia; the rights of the latter ruler, guaranteed by the British Government in 1819, were transferred by him with the cession of the Pānch Mahāls in 1861. Until 1825 the State was under the Political Agency of Mahī Kāntha. The chief (Māhārānā) is a Hindu of the Solanki Rājput caste, and is entitled to a salute of nine guns. The family hold a *sanad* authorizing adoption, and they follow the rule of primogeniture.

The population at the last four enumerations was: (1872) 74,813, (1881) 75,450, (1891) 90,147, and (1901) 63,967, showing a decrease during the last decade of 28 per cent., due to the famine of 1899–1900. The State contains one town (LŪNĀVĀDA) and 318 villages. Hindus number 59,876 and Muhammadans 3,751; the density of population is 165 persons to the square mile. The chief castes are Brāhman, Rājput, and Kunbī. About one-third of the area of the State has been alienated, some lands having been granted in free gift, and others on service or other tenures. About 231 square miles are occupied for cultivation, of which 159 were cultivated in 1903–4. The soil is generally stony. Cereals and timber are the chief products. In 1903–4 exports, consisting chiefly of grain, oil, and *ghī*, amounted to 3 lakhs; and imports, consisting of cloth, grain, and sugar, to about the same amount. Irrigation is chiefly from wells, though there are many reservoirs. A well-frequented route between Gujarāt and Mālwā passes through Lūnāvāda.

The chief has power to try his own subjects for capital offences. He enjoys a revenue of about 1·8 lakhs, chiefly derived from land (Rs. 1,25,000), and pays a tribute of Rs. 14,232 jointly to the British Government and the Gaikwār of Baroda. There is one municipality (Lūnāvāda) with an income in 1903–4 of Rs. 2,776. The police force consists of 177 men, including a military body of 43, who are employed for police and revenue purposes. There is one jail. In 1903–4 the

State contained 12 schools, with a daily average attendance of 747 boys and 555 girls. There are two dispensaries, one of which treated 9,000 patients in 1903-4, and the other, which prescribes native medicines only, treated an average of 30 patients a day. Nearly 1,800 persons were vaccinated in the same year.

Lūnāvāda Town.—Capital of the State of the same name in the Rewā Kāntha Agency, Bombay, situated in 23° 8′ N. and 73° 39′ E., about 4 miles east of the confluence of the Mahī and Pānam rivers, and a mile north of the latter stream. Population (1901), 10,277. The town was founded by Rānā Bhīm Singhjī in 1434. According to the local legend, the chief one day went hunting across the Mahī, and having become accidentally separated from his companions, found himself near the hut of a *sādhu* or ascetic. He presented himself before the recluse, saluted him reverentially, and remained standing until bidden to be seated. The *sādhu* was pleased with his demeanour, and, auguring a great future for him and his descendants, advised him to build a city in the forest. He told him to proceed in an easterly direction, and to mark the point where a hare would cross his path. The Rānā did as directed, a hare soon jumping out of a bush. The Rānā pursued and killed it with a spear, and marked the spot, which, it is said, is now within the precincts of the palace. The *sādhu* was the devotee of the god Lūneswar, in honour of whom the Rānā called the town Lūnāvāda. The shrine of the god still stands outside the Darkuli Gate. About the beginning of the nineteenth century the town was a flourishing centre for traffic between Mālwā and Central Gujarāt. Its artisans were remarkable for their skill; and a brisk trade in arms and accoutrements went on. The municipality has an income (1903-4) of Rs. 2,776, of which Rs. 500 is devoted to the upkeep of a public park. A road has been constructed to Shera, a British village 15 miles north of Godhra, on the Godhra-Ratlām branch of the Bombay, Baroda, and Central India Railway; and a private service of tongas has been established for the benefit of passengers to and from Lūnāvāda. Two fairs of local importance, one in August and the other in February, are held close to Lūnāvāda on the Pānam river.

Lungleh.—Subdivision of the Lushai Hills District, Eastern Bengal and Assam, lying between 22° 19′ and 23° 23′ N. and 92° 21′ and 93° 10′ E., with an area of 2,526 square miles. The population in 1901, the first year in which a Census was taken, was 29,498, living in 114 villages. The head-quarters of the subdivision are situated at Lungleh village.

Lūni ('salt river,' the Lonavāri or Lavanavāri of Sanskrit writers).—River of Rājputāna, which rises in the hills south-west of Ajmer city in 26° 25′ N. and 74° 34′ E., and is first known as the Sāgarmati. After passing Govindgarh it is joined by the Sarsuti, which has its

source in the sacred lake of Pushkar, and from this point the river is called the Lūni. It at once enters Jodhpur territory, and, after a course of about 200 miles generally west-by-south-west, is finally lost in the marshy ground at the head of the Rann of Cutch (24° 40′ N. and 71° 15′ E.). It receives the drainage brought by the mountain torrents down the western slopes of the Arāvalli Hills between Ajmer and Abu, and is a veritable blessing to the southern districts of Jodhpur. There is a saying in Mārwār that half the produce of the country, so far as cereals are concerned, is the gift of the Lūni. It is for the most part merely a rainy-season river, and in the hot months melons and the *singhāra* nut (*Trapa bispinosa*) are grown in great quantities in its dry bed. The banks range from 5 to 20 feet in height, and are in parts covered with bushes of *jhao* (*Tamarix dioica*). In heavy floods, which, however, are rare, the river overflows its banks in the districts of Mallāni and Sānchor; the local name of the overflow is *rel*, and on the soil thus saturated fine crops of wheat and barley are grown. The Lūni is, however, most capricious and erratic: on one bank it may be a blessing, on the other a curse. As far as Bālotra the water is generally sweet; but lower down it becomes more and more saline in character, till, on the edge of the Rann of Cutch, the three branches of the river are described as reservoirs of concentrated brine. By means of a dam thrown across the Lūni near the town of Bilāra, one of the largest artificial lakes in India has been formed. It is called Jaswant Sāgar, after the late chief of Jodhpur, and can, when full, irrigate more than 12,000 acres. Its catchment area is 1,300 square miles; surface area (when full), 22 square miles; capacity, 3,800 million cubic feet; greatest depth, 40 feet; length of canals and distributaries, 40 miles. The total expenditure to March 31, 1905, has been nearly $9\frac{1}{4}$ lakhs, and the annual revenue since the work was completed in 1895-6 has averaged about Rs. 50,000.

Lushai Hills.—District in Eastern Bengal and Assam, lying between 22° 19′ and 24° 19′ N. and 92° 16′ and 93° 26′ E., with an area of 7,227 square miles. It is bounded on the north by Sylhet and Cāchār, and the State of Manipur; on the west by the Chittagong Hill Tracts and the State of Hill Tippera; on the south by Northern Arakan and the Chin Hills; and on the east by the Chin Hills. The whole surface is covered with ranges of hills, which run almost due north and south, with an average height of about 3,000 feet on the west, rising to 4,000 feet farther east, and here and there to over 8,000 feet. The sides of the hills are covered with forest and dense bamboo jungle, except in those places where they have been cleared for cultivation, and a stream or river is invariably to be found in the narrow valleys

Physical aspects.

at their feet. The most important of these rivers are the Tlong or Dhaleswari, the Sonai, and the Tuivol, which drain the northern portion of the country and eventually fall into the Barāk. The southern hills are drained by the Koladyne on the east, with its tributaries the Mat, Tuichang, Tyao, and Tuipui; while the Karnaphuli, at the mouth of which stands Chittagong, with its tributaries the Tuichong, Kao, Deh, Phairang, and Tuilianpui, forms the western drainage system.

The drainage-levels of the country are unusually complicated. The Tlong for some 40 miles of its length runs due north, while parallel to it, on the east the Mat, and on the west the Deh, flow due south. In the same way, the Tuivol and Tuichang and the Tuilianpui and Gutur have parallel courses for many miles, but run in opposite directions. The Tuichong and Phairang flow north till they join the Deh, which then turns west and delivers their combined waters into the Karnaphuli, which flows south-west. Scattered about the District are several plains of considerable size. These have, as a rule, an elevation of about 4,500 feet, and are covered with a thick layer of rich alluvial soil. They are surrounded by hills, which slope gently towards the plain but are generally very steep and often precipitous on the other side. Through the centre runs a sluggish stream, which escapes through a narrow gorge, below which is generally a fall of some height. It has been suggested that these plains are the silted-up beds of lakes, a conjecture which is rendered the more probable by the fact that there are several lakes which at present have no outlet, and which must in course of time silt up till the water overtops the lowest point in the surrounding chain of hills. The largest of these plains is Champhai, which has a length of about 7 miles and at the widest point is nearly 3 miles across.

The hills consist of sandstones and shales of Tertiary age, thrown into long folds, the axes of which run nearly north and south. The rocks are a continuation southwards of those forming the Pātkai range, and were probably laid down in the delta or estuary of a large river issuing from the Himālayas in the Tertiary period. Marine fossils of that age have been found near Lungleh, embedded in nodular dark grey sandstone.

The hill-sides are generally covered with dense forest or bamboo jungle. Palms, which are common on the lower slopes, give place to various members of the *Ficus* family; and such trees as *garjan* (*Dipterocarpus turbinatus*), *gugera* or *maku* (*Schima Wallichii*), oaks, chestnuts, and firs grow on the higher ridges. Herbaceous plants are not common, but ferns and orchids are found in large quantities.

Wild animals include elephants, rhinoceros, bison, various kinds of deer, gural, and serow (*Nemorhaedus*), tigers, leopards, the Himālayan

black bear (*Ursus torquatus*), and the Malay bear (*Ursus malayanus*). The *mithan* or *gayāl* (*Bos frontalis*) is kept in domestication. Small game include jungle-fowl and several kinds of pheasant.

The valleys are malarious and unhealthy; and during the rains the climate, even on the lower hills, is moist and enervating, and malarial fevers are common everywhere. On the higher ridges it is fairly cool and pleasant even at the hottest seasons of the year. In March and April violent storms from the north-west sweep over the hills. The District, like the rest of Assam, enjoys an abundant rainfall. The average fall at Aijal, in the northern hills, is 80 inches in the year, but farther south the precipitation is still heavier, and at Lungleh 131 inches are usually recorded. The rainfall is generally well distributed and the crops seldom suffer from drought.

History.

The history of the Lushai Hills, as far as known, is the history of a backwash or eddy of the great wave of immigration that is generally believed to have started from North-West China and spread over Assam and southwards towards the sea. In the Lushai Hills the movement for the last hundred years has been northwards; and at the beginning of the nineteenth century certain tribes, known as the Old Kūkis, were driven from this country, and finding no safety in the plains of Cāchār, settled in the hills to the north of the Surmā Valley. Fifty years later there was another immigration of hillmen, called New Kūkis to distinguish them from their predecessors, who were driven from the southern hills by the Lushais, who made their first appearance on the Chātāchara range in 1840. Prior to the advent of the British, the hillmen had been accustomed to make periodical descents upon the plains; and in 1849 four separate raids were committed, one of them on a village within 10 miles of Silchar, in which 29 of the inhabitants were killed and 42 taken captive. These outrages were followed by an expedition led into the hills by Colonel Lister, who in 1850 surprised and destroyed the village of Mullah, one of the chiefs concerned in the raid. This demonstration kept the hillmen quiet for some years; but in 1862 they broke out afresh, and the diplomatic efforts that followed had little practical effect. In the cold season of 1868–9 raids were made on Manipur and Sylhet, and the Noārband and Maniārkhāl tea factories in Cāchār were burnt and plundered. An expedition was dispatched into the hills, but it started too late in the season and failed to inflict the punishment required. In January, 1871, a determined raid was made down the Hailākāndi valley. The village of Āinākhāl was burnt and twenty-five persons killed, the Alexandrapur tea factory was destroyed, a tea planter—Mr. Winchester—murdered, and attacks were made upon four other tea gardens with varying success. The raiders were eventually driven off, but not before

they had succeeded in killing twenty-seven persons in addition to those already mentioned, seven of whom were sepoys sent to protect the outlying gardens. Raids were also made on Sylhet, Hill Tippera, and Manipur. Such violent and ferocious forays called for vigorous measures of repression, and in the cold season of 1871–2 two columns were sent into the hills, one from Chittagong, the other from Cāchār. This expedition was completely successful, and the peace of the Assam frontier remained undisturbed for the next twenty years.

In 1888 two serious raids were committed in the Chittagong Hill Tracts. In one the attacking party killed Lieutenant Stewart and two corporals of his regiment; in the other they cut up the inhabitants of a village located only 8 miles from Demāgiri. The following cold season a small force was sent into the hills to exact reparation for these outrages, and a stockaded post was built at Lungleh and garrisoned by 200 men. This demonstration of military activity had little effect upon the Lushais; and at the very time when the expedition was in the hills, Lianphunga, a son of Sukpilal, dispatched a raiding party which devastated the Chengri valley on the Chittagong frontier. Prompt measures for reprisal were taken, and columns were dispatched into the hills from Silchar and Chittagong during the following cold season. The captives were surrendered and the offending village burnt; but the British Government had at last come to the decision that here, as elsewhere, the only effective method of protecting the frontier was the establishment of fortified posts in the hills themselves. Stockades were accordingly erected at Fort Tregear in the South Lushai Hills, and at Aijal and Changsil in North Lushai. A Political officer, Captain Browne, was stationed in the northern hills, and at first all seemed progressing favourably. Suddenly, without a word of warning, the Lushais rose in September, 1890, attacked the two stockades, and killed Captain Browne, who was marching along the road with an escort of four sepoys. A force was immediately sent up from Cāchār, and though Lieutenant Swinton, the officer in command, was killed, Aijal and Changsil were relieved without delay. Active operations were then commenced, and within two months only one of the western chiefs responsible for this disturbance was at large. On April 1, 1891, the South Lushai Hills, which had been controlled by an Assistant Political officer under the Commissioner of Chittagong, were formed into a District and placed under a Superintendent.

At the beginning of 1892 the Lushai country was to all appearances in a condition of profound peace, and Mr. McCabe, the Political officer of North Lushai, proceeded to the village of a chief named Lalbura, who had declined to comply with a requisition sent to him for coolies. He was attacked there by a party of Lushais; but they were driven off, and a force of police was then sent to the hills east of the

Sonai, as the chiefs in this quarter had assisted Lalbura in his rising. Captain Shakespear, the Superintendent of the South Lushai Hills, heard of the attack on Mr. McCabe, and marched northwards to his assistance. When he reached Vansanga's village, the whole country rose in arms, and he was compelled to entrench himself and act on the defensive. The Lushais made constant attacks upon his camp, attempted Lungleh, threatened Demāgiri, cut the telegraph wires, and spread themselves over the line of communications. Captain Shakespear was relieved by a column dispatched from Burma, and the combined forces then proceeded to inflict such punishment as they could during the short time that their scanty supplies enabled them to remain in the field. In December, 1892, a punitive expedition was dispatched into the hills, which co-operated with a column sent from Aijal, and impressed upon the rebellious villages a sense of the futility of attempting to resist the British Government. No active opposition was encountered, and since that date the peace of the District has been undisturbed. In 1898 the South Lushai Hills were transferred to the Assam Administration, and the District for the first time took its present form.

Population.

The first complete Census of the Lushai Hills was taken in 1901, and disclosed a population of 82,434, living in 239 villages. The following table gives for each subdivision particulars of area, villages, population, &c. :—

Subdivision.	Area in square miles.	Number of villages.	Population.	Population per square mile.	Number of persons able to read and write.
Aijal . .	4,701	125	52,936	11	2,058
Lungleh . .	2,526	114	29,498	12	
District total	7,227	239	82,434	11	2,058

The hills are very sparsely peopled, and only support 11 persons per square mile. An unusual feature in the constitution of the population is the great preponderance of females, there being 1,113 women to every 1,000 men. More than 95 per cent. of the people profess no other creed than Animism, and a little more than 4 per cent. are Hindus. All of these Hindus are foreigners, most of them being members of the military police battalion and their dependents. The number of the native Christians is still very small (26), but it was only in 1897 that the Welsh Presbyterian Mission undertook to carry on the work which had been begun by two pioneer missionaries. About 87 per cent. of the population of the hills returned Lushai or Dulien as their usual form of speech, a language which is akin to the

'Old Kūki' dialect Rangkhol, and to various forms of speech used by the Nāgā tribes. Agriculture was the means of support of 93 per cent. of the population in 1901.

The inhabitants of the hills are said to be all members of the same race, but are divided up into a number of families or clans. These clans are distinguished from one another by differences in sacrificial ritual and in some cases by differences in dialect, but all enjoy the *ius connubii.* The principal subdivisions are the Lushais (36,400), who supply chiefs to nearly every village in the hills; the Poi (15,000), or immigrants from the Chin Hills; the Hmar (10,400), or tribes who have come from Manipur; and the Ralte (13,800), Paithe, Thado, and Lakher. The other groups into which the population is divided are rapidly losing their distinctive traits.

The Lushais, to apply one generic term to all the inhabitants of the hills, are a short and sturdy race, with countenances of a distinctly Mongolian type, and well-developed legs. The men seldom have hair upon their faces, and pick out what little grows, with the exception of a few shoots at the corners of the mouth. Both sexes draw their hair tight back and tie it in a knot, and wear a coat which reaches below the waist, and a shawl thrown over the shoulders. Women, in addition, wear a blue petticoat, reaching to the knee, and ivory rings about 1½ inches in diameter in their ears. Amber necklaces and rough uncut carnelians are highly prized. Their arms are flint-lock muskets, *daos* or billhooks of the Burmese pattern, and an inferior kind of spear.

The people live in villages, each of which is ruled by a chief, who is entirely independent. The chief is supreme; but if his subjects dislike his system of administration, they move elsewhere. He settles all disputes, decides where the village is to cultivate, and when and where it shall be moved. His house is the poorhouse of the community, and orphans and indigent persons live there and get food in return for labour. The other officials are the *upa* or councillors, the crier, the blacksmith, and the *pui-thiam* or sorcerer.

Villages are generally built on the top of a ridge or spur, and before the British occupation of the hills were strongly stockaded. The houses are laid out in streets radiating from a central square, in which stand the chief's house and the house where strangers and the young unmarried men of the village sleep. They are built on piles on the natural slope of the hill, and at the end nearest the road is a rough platform of logs. The doorway has a high sill, and the door consists of a sliding panel of bamboo work. On each side of the fireplace are bamboo sleeping platforms, and beyond is a kind of lumber room, from which a door opens on a small back veranda. Windows in the side of the house are considered unlucky, unless the right to make them has been purchased by killing two *mithan* and feasting the

village—a curious instance of a savage form of window tax, and an example of the material gains accruing from many of the religious beliefs and superstitions of the hill tribes of Assam. The posts used are of timber, but the walls, floor, and roof frame are made of bamboo. The roof is generally thatched with cane leaves, tied down with broad bands of split bamboo.

In spite of the fact that women exceed the men in numbers, the Lushai bachelor has to pay heavily for his wife. The price paid to the father or nearest male relative of the girl varies from three to ten *mithan*, for it is always stated in terms of these animals, though cash or other articles may actually be given in their place. But the father is by no means the only person whose demands have to be satisfied. The girl's aunt receives from Rs. 5 to Rs. 40, the nearest male relative on her mother's side from Rs. 4 to Rs. 40, the eldest sister gets a small sum as a reward for having carried about the bride when young, and there are also the male and female protectors of the bride to each of whom a present must be given. The result is that it not unfrequently happens that a man dies with his obligations still undischarged, and leaves to his children the task of paying for their mother. The essential part of the marriage ceremony is a feast to the friends and relations, and the sacrifice of a fowl by the *pui-thiam*. For some time after the wedding the bride sleeps with her husband, but returns every day to her father's house. Divorce by mutual consent is recognized; but under these circumstances the husband recovers no part of the bride's price, so that he has every inducement to make the best of the lady he has chosen. Unmarried girls are not expected to remain chaste; but if a lover begets a child, he is required to pay one *mithan* to its maternal grandfather, unless he marries the object of his affections, when the ordinary bride price only is charged. Among the Paithes the marriage ceremony is not performed till the woman has given evidence of her fertility. If she remains barren, the match is broken off. During the first seven days of its life, the spirit of a child is supposed to spend part of its time perched on the bodies of both its parents, and for fear of injuring it they have to keep quiet during this period. By this means primitive man ensures that the mother shall have a short period of repose.

After death, the corpse is dressed in its best clothes and fastened to a bamboo frame in a sitting posture. A big feast is then given to the friends and neighbours, and food and drink are offered to the corpse. On the evening following the death, the body is interred just opposite the house, the grave consisting of a shaft about 4 or 5 feet deep, from which a tunnel branches off in which the corpse is placed. People who belong to wealthy families are not buried at all. They are placed in a hollow tree-trunk, the lid of which is carefully plastered with mud,

and put beside a fire in the centre of the house. A hollow bamboo connects the coffin with the earth, and drains off liquid matter. The nearest relatives sit beside the coffin and drink rice-beer, and at the end of three months the bones are collected and stored in a basket. The Paithes smear a greasy preparation over the corpse, which preserves and hardens the skin. It is then dressed up, and in the evening is brought out, and rice-beer is poured down its throat, while the people sing and dance around it. This disgusting performance is sometimes kept up for several months.

The religion of the Lushais is of the usual animistic kind. They believe in a Creator, who does not trouble himself much with the subsequent fate of the world he has created, and most of their religious energies are devoted to the propitiation of the evil spirits, who are supposed to be the cause of all misfortune. Like many of the other hill tribes, they recognize two degrees of happiness after death—the greater joy being reserved for those who have killed men or animals in the chase, or have feasted the village. Women can only enter this abode of bliss if taken there by their husbands, so a premium is placed on wifely obedience and devotion. Existence in the ordinary spirit world is thought to be far from pleasant. After a certain time, the soul is born again in a hornet, and presently is converted into water. If in the form of dew it falls upon a man, it is born again on the earth in the shape of his child.

In wealthy families when a son marries he receives a certain number of houses and becomes an independent chief. At the same time a share of his father's guns, necklaces, and other valuables and slaves are made over to him. The youngest son remains with his father till his death and then succeeds to the village. Much the same custom prevails among the common people.

Agriculture.

Like other hill tribes, the Lushais follow the system of *jhūm* cultivation. The jungle growing on the hill-side is cut down and burnt, the ground is cleared of logs which were too large to burn, and the seeds of rice, maize, millet, vegetables, and cotton are dibbled in among the ashes. The largest yield is obtained from land which has just been cleared of virgin forest, or which has not been disturbed for forty or fifty years. Land that bears a heavy growth of bamboo jungle is also highly esteemed, but hill-sides covered with *ikra* (*Saccharum arundinaceum*) and grass are said to yield very poor harvests, though good crops are obtained from such land in the Nāgā Hills. The only agricultural implements used are *daos*, axes, and hoes. The *dao* is a knife with a triangular blade about three inches wide at the end and half an inch wide at the handle, which is used to cut down the jungle and to make the holes in which the seeds are planted. The axes and hoes are small and light. It is

only where land has not been cultivated for many years that a crop of rice is taken from it in two successive seasons, though peas and beans are often sown on *jhūms* cleared in the previous year. Land covered with bamboos can be cropped every fourth year, but land under forest is allowed six to nine years' rest. The cultivation is thus of a migratory character, and the villages are shifted at intervals of about five years to enable the cultivator to live near his fields. The area under cultivation is not known, and there are no means of estimating its extension or decrease. Little attempt has as yet been made to improve the existing staples or to introduce new varieties. The cultivation of irrigated rice has, however, been tried in various parts of the District, and has been adopted by a few of the Lushais.

The live-stock include tame *mithan*, pigs, goats, and dogs. Pigs are carefully tended, and treated almost as pets; the goats are of the long-haired hill breed. Dogs are used for food, and are said to be similar to those eaten by the Chinese. They are of medium size, with long yellow hair, short legs, a bushy and tightly curled tail, and a pointed nose, and are in great requisition for sacrificial purposes.

The District has never been properly explored by a geologist; but the officer of the Geological Survey department who accompanied the expedition of 1889–90 found no traces of coal, limestone, or other minerals of economic value either in the rocks through which the road was cut or in the débris brought down by the rivers.

Trade and communications.

The only articles manufactured in the District are earthen pots and pipes, the *daos*, hoes, and axes required for cultivation, and cotton cloths. These cloths are woven from yarn spun from homegrown cotton, and are superior to those usually manufactured by the hill tribes. They are, however, produced only in sufficient quantities to clothe the members of the family, and are seldom sold. Such trade as exists is in the hands of Bengalis or merchants from Rājputāna, and there are only two or three Lushai shopkeepers in the whole District. The principal imports are food-stuffs, cloth, iron, *daos*, brass pots and umbrellas, while forest produce is exported.

A bridle-path runs from Silchar to Aijal, the head-quarters of the District, a distance of 120 miles; but heavy goods are usually brought up the Dhaleswari river to Sairang, 13 miles from Aijal. The journey between Silchar, the place at which passengers usually embark, and Sairang occupies from twelve to twenty-one days up and from four to six days down-stream. Bridle-paths run from Aijal to Falam, Lungleh, and North Vanlaiphai, and from Lungleh to Haka and Demāgiri, on the route to Chittagong. Altogether 4 miles of cart-road and 542 miles of bridle-paths were maintained in 1903–4.

The country never suffers from want of rain, but in 1881 there was

scarcity, due to the depredations of rats. In the previous season the bamboos had seeded, and the supply of food thus provided caused an immense multiplication in the numbers of these rodents, which, when they had exhausted the bamboo seed, devoured the rice crop. The Lushais descended into the Surmā Valley in search of work and food, and Government sent about 750 tons of rice into the hills.

Famine.

For general administrative purposes the District is divided into two subdivisions: Aijal, under the immediate charge of the Superintendent of the Hills, who is a member of the Assam Commission; and Lungleh, under a European police officer. Public works are in charge of a District Engineer, who is under the orders of the Superintendent of the Hills, and a Civil Surgeon is stationed at Aijal. The political organization of the Lushais themselves is considerably in advance of that usually found among the hillmen of Assam. Their chiefs possess considerable influence and power, and the Government is thus able to deal with responsible individuals. Advantage has been taken of this in the internal administration of the District. The Aijal subdivision is divided into twelve and the Lungleh subdivision into six circles. In each of these circles an interpreter is stationed, through whom all orders are transmitted to the village chiefs, and who is responsible for seeing that these orders are carried out. He is also required to submit regular reports on all events occurring within the circle and on the state of the crops. In each village a writer has been appointed, who prepares and keeps up a house list, and in return for this is exempted from payment of house tax and from labour on the roads. The chiefs and headmen of villages are held responsible for the behaviour of their people, their authority is upheld by Government, and litigation generally and any tendency to appeal against the orders of the chiefs in petty cases is discouraged.

Administration.

All criminal and civil cases which are not disposed of by the chiefs themselves are heard by the Superintendent and his assistants. The Superintendent exercises powers of life and death, subject to confirmation by the Lieutenant-Governor, who is the chief appellate authority. The High Court at Calcutta has no jurisdiction in the hills, except in criminal cases against Europeans.

Land revenue is not assessed, but the people pay a tax of Rs. 2 a house. In addition to this money tax, the Lushais are required to provide labour when required by Government, but the coolies so employed receive the liberal wage of eight annas a day.

The civil police force includes 2 sub-inspectors and 49 head constables and men; but the real garrison of the District consists of a battalion of military police under three European officers, with a

sanctioned strength of 800 officers and men. A small jail at Aijal has accommodation for 13 prisoners.

In 1903–4 there were two schools at Aijal, one maintained by Government, and one by the Welsh Presbyterian Mission; and Government schools at Lungleh and Khawmbawk. The total number of pupils in the Government schools was only 175, and the expenditure on education amounted to Rs. 3,524, the greater part of which was met from Provincial revenues. For a savage tribe who have so recently come under British rule, the Lushais show a considerable aptitude for civilization. In 1901, 2·5 per cent. of the population (5·1 males and 0·1 females) were able to read and write, a proportion much higher than in Manipur or in the Nāgā or Gāro Hills. This difference is probably due to the aristocratic organization of their community. When arrangements were being made for the Census of 1901, it was found that some villages had not a single literate person to act as enumerator. A man was then selected by the chief and sent to headquarters, in order to be taught how to read and write.

The District possesses 7 dispensaries and 5 military police hospitals, with accommodation for 144 in-patients. In 1904 the number of cases treated was 34,000, of whom 1,200 were in-patients, and 300 operations were performed. The expenditure was Rs. 14,400, which was entirely met from Provincial revenues.

Vaccination is not compulsory in any part of the District, and the Lushais have not suffered sufficiently from small-pox to be fully alive to its value as a prophylactic. In 1903–4 only 20 per 1,000 of the population were vaccinated, a figure far below the average for the Province as a whole.

[B. C. Allen, *Gazetteer of the Lushai Hills* (1906). A monograph on the Lushais is under compilation.]

Lyallpur District.—A new District in the Multān Division of the Punjab, lying between 30° 50′ and 31° 45′ N. and 72° 20′ and 73° 31′ E., with an area of 3,075 miles.

The District was constituted on December 1, 1904, mainly of villages transferred from Jhang, with the addition of a certain number from Montgomery. It comprises most of the high table-land between the Chenāb and Rāvi rivers, and is now irrigated by the Lower Chenāb Canal. On the north it is bounded by the northernmost or Jhang branch of the canal, and is separated from the Chenāb riverain by a strip of Colony land which has remained attached to Jhang District. On the north-east it is bounded by Gujrānwālā and Lahore; on the south-east by Montgomery; on the south-west by Multān; and on the west by Jhang.

The District contains a few proprietary villages near the Rāvi in the south and on the Jhang border; the rest consists of the villages built

on crown waste and colonized by Government. The climate is very hot in the hot season, and the rainfall is very small: 10·86 inches fell at Lyallpur in 1905–6.

The following table shows the area and population of Lyallpur District, according to the most recent returns:—

Tahsīl.	Area in square miles.	Number of towns.	Number of villages.	Population.	Population per square mile.
Lyallpur . .	901	1	304	239,405	266
Samundri . .	1,309	...	495	266,277	204
Toba Tek Singh .	865	...	342	148,984	172
District total	3,075	1	1,141	654,666	213

The figures for population are taken from a local Census held on September 29, 1906.

Land revenue and cesses amounted in 1905–6 to 17·3 lakhs. Land tenures are dealt with in the article on the CHENĀB COLONY.

The District is traversed by the Wazīrābād-Khānewāl section of the North-Western Railway. There are at present three metalled roads in existence—from Lyallpur to Rodu Koru, from Lyallpur to Satiāna, and from Chiniot Road to Pauliāni—56 miles in all.

The District is in charge of a Deputy-Commissioner, aided by three Assistant or Extra-Assistant Commissioners, of whom one is in charge of the District treasury. The greater part of the revenue administration is in the hands of the Colonization Officer[1], who has a special staff to assist him and is independent of the Deputy-Commissioner. The District is divided into three *tahsīls*, each in charge of a *tahsīldār* assisted by a *naib-tahsīldār*. Five Executive Engineers of the Lower Chenāb Canal have their head-quarters at Lyallpur town. (*See* articles on CHENĀB COLONY and JHANG DISTRICT.)

[L. H. Leslie Jones, *Chenāb Colony Gazetteer* (1904).]

Lyallpur Tahsīl.—Head-quarters *tahsīl* of the new Lyallpur District, Punjab, lying between 31° 11′ and 31° 45′ N. and 72° 47′ and 73° 31′ E., with an area of 901 square miles. The population in 1906 was 239,405, with a density of 266 persons per square mile. It contains the town of LYALLPUR (population, 13,483) and 304 villages, including Chiniot Road (1,276). The land revenue and cesses in 1905–6 amounted to 5·9 lakhs. The *tahsīl*, which occupies the centre of what was formerly the Sandal Bār, is now wholly irrigated by the Chenāb Canal. It consists of a level plain of fine loam, with a low spring-level, which is, however, steadily rising. The boundaries of the *tahsīl* were somewhat modified when the new District was formed.

[1] The post of Colonization Officer was abolished in April, 1907.

Lyallpur Town.—Head-quarters of the Lyallpur *tahsīl* and the Chenāb Colony, and since 1904 of the new Lyallpur District, Punjab, situated in 31° 26′ N. and 73° 91′ E., on the North-Western Railway. Population (1906), 13,483. The municipality was created in 1898. The income during the four years ending 1902–3 averaged Rs. 23,500, and the expenditure Rs. 21,900. In 1903–4 the income was Rs. 66,800, derived mainly from octroi; and the expenditure was Rs. 73,700. The town is one of the greatest dépôts for the exportation of wheat in the Province, and collects all kinds of agricultural produce from the Chenāb Colony. It contains 5 cotton-ginning factories, 4 cotton-presses, 2 combined ginning and pressing factories, an iron foundry, and a flour-mill. The iron foundry and the flour-mill were closed in 1904, but the other factories employed 581 hands. Lyallpur has a sub-agency of the Commercial Bank of India, and a detachment of the Punjāb Light Horse; also a dispensary and an Anglo-vernacular middle school, maintained by the municipality.

Mācheri.—Village in the Rājgarh *tahsīl* of the State of Alwar, Rājputāna, situated in 27° 15′ N. and 76° 40′ E., about 3 miles north-east of Rājgarh town, and 23 miles south of Alwar city. Population (1901), 2,620. The estate of Mācheri was granted about 1671 by Mirza Rājā Jai Singh of Jaipur to Rao Kalyān Singh, an ancestor of the present ruling family of Alwar; and about ninety years later, in the time of Rao Pratāp Singh, the founder of the Alwar State, it consisted of but 2½ villages: namely, Mācheri, Rājgarh, and half Rājpura. Before he died in 1791, Pratāp Singh had developed this little estate into a principality comprising almost all the territory now called Alwar.

Māchhīwāra.—Town in the Samrāla *tahsīl* of Ludhiāna District, Punjab, situated in 30° 55′ N. and 76° 12′ E., 6 miles from Samrāla and 27 from Ludhiāna. Population (1901), 5,588. It has a small sugar industry, and was the scene of Humāyūn's defeat of the Afghāns in 1555. The municipality was created in 1867. The income and expenditure during the ten years ending 1902–3 averaged Rs. 4,900. In 1903–4 the income was Rs. 4,200, chiefly from octroi; and the expenditure was Rs. 5,100. The town has a Government dispensary, and the municipality maintains a vernacular middle school.

Machhlīshahr Tahsīl.—South-western *tahsīl* of Jaunpur District, United Provinces, comprising the *parganas* of Ghiswā, Mungrā, and Garwārā, and lying between 25° 30′ and 25° 55′ N. and 82° 7′ and 82° 28′ E., with an area of 344 square miles. This area is exclusive of an enclave belonging to Partābgarh District. Population fell from 244,677 in 1891 to 233,431 in 1901. There are 610 villages and two towns: MACHHLĪSHAHR (population, 8,725), the *tahsīl* head-quarters, and MUNGRĀ-BĀDSHĀHPUR (6,130). The demand for land revenue in

1903–4 was Rs. 2,82,000, and for cesses Rs. 44,000. The density of population, 679 persons per square mile, is the lowest in the District. Machhlīshahr is triangular in shape and is crossed by the Sai and Basūhī rivers, while the Barnā forms part of the southern boundary. It contains a great deal of low-lying land in which rice is largely grown, and also some patches of barren *ūsar*. The area under cultivation in 1903–4 was 205 square miles, of which 106 were irrigated, chiefly from wells. Tanks and *jhīls* supply nearly a fifth of the irrigated area, a larger proportion than elsewhere in this District.

Machhlīshahr Town.—Head-quarters of the *tahsīl* of the same name, Jaunpur District, United Provinces, situated in 25° 40′ N. and 82° 25′ E., on the road from Jaunpur city to Allahābād. Population (1901), 8,725. The ancient name of the town was Ghiswā, derived from a Bhar chief, Ghīsū, who is said to have ruled in the neighbourhood. It is situated in the midst of a low-lying damp tract of country, and its present name of Machhlīshahr, or 'Fishtown,' was given to it owing to its liability to floods. No details are known of its history; but it contains the ruins of an ancient fort and seventeen mosques, most of which are dilapidated. The Karbala was built in the thirteenth century, and the Jāma Masjid by Husain Shāh of Jaunpur. Machhlīshahr is administered under Act XX of 1856, with an income of about Rs. 1,600. It contains the usual *tahsīlī* offices, and also a dispensary and a middle school with 147 pupils. There is little trade.

Mackeson, Fort.—Fort in Peshāwar District, North-West Frontier Province. *See* FORT MACKESON.

Madakasīra Tāluk.—South-western *tāluk* of Anantapur District, Madras, lying between 13° 44′ and 14° 12′ N. and 76° 49′ and 77° 26′ E., with an area of 443 square miles. The population in 1901 was 81,457, compared with 67,993 in 1891. There are 54 villages and one town, MADAKASĪRA (population, 10,666), the head-quarters, a place of some historical importance. The demand for land revenue and cesses in 1903–4 amounted to Rs. 1,48,000. In the centre it is hilly and rocky, the two highest peaks being Madakasīra and Ratnagiri, both of which were strongly fortified in days gone by. The eastern part resembles the adjoining portions of the valley of the Penner. The western side, however, is more level and more fertile, and is dotted with woods, groves, and tanks. It is perhaps the most favoured by nature of any portion of the District—standing at a higher elevation, receiving an ampler rainfall, possessing thicker vegetation, having a soil of superior fertility, and maintaining a higher rate of increase in its population. Its natural advantages have led to the *tāluk* as a whole being described, somewhat poetically, as the garden of the District.

Madakasīra Town.—Head-quarters of the *tāluk* of the same

name in Anantapur District, Madras, situated in 13° 56′ N. and 77° 17′ E., 56 miles from Anantapur town. Population (1901), 10,666. The town lies at the foot of a rock, which was once strongly fortified. Tradition says that it was built by the chiefs of Sīra in Mysore. Hīra Udaiyār, the founder of the family, agreed to serve the Vijayanagar government with 1,000 peons, and for their support twelve villages in the Chitaldroog *tāluk* of Mysore were given him. This grant was subsequently greatly augmented. Early in the seventeenth century the Sultān of Bijāpur took many of the chief's possessions, but left to him the two forts of Madakasīra and Ratnagiri. In 1728 the Marāthās captured the former place, and in 1741 the latter was taken by Morāri Rao, who imposed a tribute of Rs. 8,000. In 1762 Haidar Alī of Mysore took Madakasīra, but his troops were ejected two years later by Morāri Rao. Haidar seized it again in 1776, and demanded a tribute of Rs. 15,000. As this was not paid punctually, he sent the chief and his five sons prisoners to Seringapatam. The Musalmāns held the place till 1799, and the country fell under British rule in the following year. The town is now a fairly important market centre. It is surrounded by groves of coco-nut and other trees, and much cultivation. The bazar contains a number of houses faced with the neat verandas, supported on carved and painted pillars, which are a feature of this corner of the District.

Madanapalle Subdivision.—Subdivision of Cuddapah District, Madras, consisting of the MADANAPALLE, KADIRI, RĀYACHOTI, and VĀYALPĀD *tāluks*.

Madanapalle Tāluk.—South-western *tāluk* of Cuddapah District, Madras, lying between 13° 27′ and 14° 1′ N. and 78° 5′ and 78° 45′ E., with an area of 837 square miles. The population in 1901 was 136,977, compared with 127,352 in 1891; and the density was 164 persons per square mile, the District average being 148. It contains one town, MADANAPALLE (population, 14,084), the head-quarters of the *tāluk* and of the subdivision of that name; and 99 villages. The demand for land revenue and cesses in 1903-4 amounted to Rs. 2,48,000. The annual rainfall is 28 inches, the same as the District average. There are two rivers in the *tāluk*, the Pāpaghni and the Bāhudānadī. The former has some supply for the greater part of the year, but the latter is full only during the monsoons. The principal crops are rice, *rāgi*, *cholam*, wheat, and sugar-cane. The *tāluk* is very hilly, except in its north-western portion, where it runs up to meet the Mysore plateau. The hills are composed of great bare bosses and boulders of granite, which have weathered into every shade of brown, purple, and gold; and in the cultivation season the contrast between their colouring and the green crops below is extremely beautiful. The soil is for the most part good in the valleys, into

which the rains have washed down the earth from the hills, but poor elsewhere. The *tāluk* is rich in natural springs, which appear after every shower of rain. Its climate is the pleasantest in the District, as the country stands at a comparatively high elevation, but it is not free from fever. The irrigation is chiefly from tanks, the principal of which are at Peddatippasamudram, Vyāsasamudram, Rangasamudram, Badikayalipalle, and Chinnatippasamudram.

Madanapalle Town (*Madana*, 'the god of love,' and *palle*, 'a hamlet').—Head-quarters of the subdivision and *tāluk* of the same name in Cuddapah District, Madras, situated in 13° 33′ N. and 78° 31′ E. Population (1901), 14,084. It is also the head-quarters of the Executive Engineer and the Assistant Superintendent of police, and contains a station of the London Mission. It was formerly the seat of a local chieftain, who paid a revenue of Rs. 43,000 to the paramount power; but as Munro found that he had no good title to some of the villages in his possession, he was allowed to rent only one of the two villages to which he proved a right, and a deduction from the rent was allowed him for maintenance. He is stated to have had some claims to indulgence, since he had held a Company's lease from 1791 and had also submitted immediately to the British rule when the country was transferred in 1800. The family soon afterwards became extinct. Madanapalle adjoins the Mysore plateau and is 2,250 feet above the level of the sea. Consequently it is far cooler than the lower parts of the District, and is a favourite station with pensioned native officials. It is a picturesque place, being surrounded by wild hills and containing many beautiful trees. The nearest railway station is Chinnatippasamudram, 7 miles away, but the construction of the line has increased the commercial importance of the town. There is a weekly market, to which merchants from Punganūru and other places in North Arcot District bring commodities for sale.

Madanpur.—Small village in the Mahronī *tahsīl* of Jhānsi District, United Provinces, situated in 24° 15′ N. and 78° 41′ E. Population (1901), 561. The village is picturesquely situated at the narrowest point of one of the easiest passes up to the Vindhyan plateau, close to a fine artificial tank. There are numerous Chandel ruins in the neighbourhood, the finest of which are two splendid temples standing on the embankment of the lake. One of these contains an inscription recording the conquest of the Chandel kingdom by Prithwī Rāj of Delhi in 1182. A quarry of excellent sandstone lies close to the village, and iron ore was formerly worked here.

Madapollam (*Mādhavāyapālem* or *Mādhavapollem*).—Suburb of Narasapur in Kistna District, Madras, situated in 16° 26′ N. and 81° 42′ E. It was an important factory in the early days of the East

India Company, which gave its name to a class of cotton goods still known as Madapollams. The encroachments of the river Godāvari, which here makes a sharp bend towards the south, have now greatly eroded the site of the old settlement.

Mādārīpur Subdivision.—South-eastern subdivision of Farīdpur District, Eastern Bengal and Assam, lying between 22° 51′ and 23° 29′ N. and 89° 45′ and 90° 37′ E., with an area of 993 square miles. The subdivision is a low-lying alluvial tract, and in the south the country is an immense swamp, intersected by strips of high land along the banks of the rivers which once flowed through this tract. The population in 1901 was 906,135, compared with 805,501 in 1891, and is contained in the flourishing mart of MĀDĀRĪPUR (population, 17,463), the head-quarters station; and 1,806 villages. With 913 persons per square mile, the subdivision is more thickly populated than the rest of the District; the density in the north rises as high as 1,406, but drops to 649 in the swamps to the south. With Munshiganj, the adjoining subdivision of Dacca District, Mādārīpur originally formed part of the *pargana* of Bikrampur. It was transferred from Backergunge District in 1874. The great features of the subdivision are the magnificent river system and the *bīls* or marshes studded with houses built on artificial mounds raised along the boat routes. Jute is grown in large quantities and forms the chief article of commerce. The Madhumatī-Kumār Bīl route, recently opened to connect with the Eastern Bengal State Railway at Khulnā, has given a new impetus to trade. Besides the head-quarters town, other centres of trade are Dhumaria, Ghāgar, Mustafapur, Pālang, Bhojeswar, Angariā, Gosairhāt, Bhedarganj, and Sibchar.

Mādārīpur Town.—Head-quarters of the subdivision of the same name in Farīdpur District, Eastern Bengal and Assam, situated in 23° 11′ N. and 90° 13′ E., at the junction of the Ariāl Khān and Kumār rivers. Population (1901), 17,463. Mādārīpur is the centre of a flourishing jute trade and is a rapidly increasing town, but its safety is threatened by the inroads of the Ariāl Khān. There are two markets, and a brisk trade is carried on with the interior by country boats. Trade is chiefly in the hands of native merchants, one of whom keeps a salt *golā*, but Europeans have a large share of the jute business. A small line of steamers connects the town with the Nārāyanganj-Goalundo and Barisāl-Khulnā services; another links it up with the Khulnā terminus of the Eastern Bengal State Railway. Mādārīpur was constituted a municipality in 1875. The income during the decade ending 1901-2 averaged Rs. 9,600, and the expenditure Rs. 9,500. In 1903-4 the income was Rs. 12,200, including Rs. 5,000 derived from a property tax, and Rs. 2,000 from a conservancy rate; and the expenditure was Rs. 12,700. The town

contains the usual public offices; the sub-jail has accommodation for 36 prisoners.

Madaya Subdivision.—Northern subdivision of Mandalay District, Upper Burma, containing the MADAYA and SINGU townships.

Madaya Township.—Central township of Mandalay District, Upper Burma, lying between 22° 1′ and 22° 21′ N. and 96° and 96° 25′ E., with an area of 321 square miles. The population was 51,208 in 1891, and 53,212 in 1901, distributed in 217 villages, the head-quarters being at Madaya (population, 1,545), 15 miles due north of Mandalay, famous for its valuable gardens on the Shwetachaung Canal. The rice-fields on this waterway are very fertile, and can in some cases produce three crops a year. The country in the north-east away from the river is parched and uncultivable. The area cultivated in 1903–4 was 81 square miles, and the land revenue and *thathameda* amounted to Rs. 3,20,000.

Maddagiri.—North-eastern *tāluk* of Tumkūr District, Mysore, including the Koratagere sub-*tāluk*, and lying between 13° 27′ and 13° 55′ N. and 77° 1′ and 77° 28′ E., with an area of 606 square miles. The population in 1901 was 116,695, compared with 97,973 in 1891. The *tāluk* contains three towns, Maddagiri (population, 4,060), the head-quarters, Koratagere (2,811), and HOLAVANHALLI (1,682); and 480 villages. The land revenue demand in 1903–4 was Rs. 2,27,000. The *tāluk* is crossed from north to south by the lofty chain of mountains which include Midagesidurga (3,414 feet), Maddagiridurga (3,935 feet), and Channarāyadurga (3,744 feet). The valleys west of the range and south of Maddagiri are higher than the other parts of the *tāluk*. The open country to the north-east is principally watered by the Jayamangali, and a small portion by the Kumadvati, both affluents of the Penner, which flows near the boundary. The large Māvattūr tank has been formed in the south-east, in a very fertile tract, and is fed by *talpargis* or spring-heads near the surface.

Maddagiridurga.—Bold fortified hill, 3,935 feet high, in the north-east of Tumkūr District, Mysore, situated in 13° 39′ N. and 77° 13′ E. The only access is on the northern face, which slopes upwards at a steep angle, presenting large sheets of bare rock that scarcely allow of foothold unless perfectly dry. In time of war the garrison, it is said, used to pour oil down these rocky inclines to prevent the assailing force from mounting the hill. The original fort was built by a local chief, from whose descendants it was taken by Mysore about 1678. The fortifications were greatly extended by Haidar Alī; and here, in 1763, was imprisoned the queen of Bednūr, with her paramour, and also the pretender to her throne, until released by the Marāthās in 1767 on their capture of the place. It was recovered by Tipū Sultān in 1774. There are many springs and ponds on the hill, with large

granaries and storehouses, formed out of caverns or excavated in the rock.

Maddūr.—Town in the Mandya *tāluk* of Mysore District, Mysore, situated in 12° 35′ N. and 77° 3′ E., on the Mysore State Railway, near the right bank of the Shimsha. Population (1901), 2,597. The name is properly Marudūr. Under the Gangas it was included in Chikka Gangavādi, and in the eleventh century was under the Cholas. Early in the twelfth century the Hoysala king Vishnuvardhana granted it to the Srīvaishnava Brāhmans as a *agrahāra*. He also made the Maddūr tank, and built the Varadarāja temple. The fort was taken by Mysore in 1617, and was rebuilt by Haidar, but dismantled in 1791 by Lord Cornwallis in his march on Seringapatam. The fine bridge over the Shimsha was completed in 1850, and since 1882 has been used for the railway as well as the road. The municipality dates from 1884, but was converted into a Union in 1904. The receipts and expenditure during the ten years ending 1901 averaged Rs. 670 and Rs. 800. In 1903–4 they were Rs. 850 and Rs. 1,200.

Madgiri.—*Tāluk* of Tumkūr District, Mysore. *See* MADDAGIRI.

Madgiridrūg.—Hill in Tumkūr District, Mysore. *See* MADDAGIRIDURGA.

Mādha Tāluka.—*Tāluka* of Sholāpur District, Bombay, lying between 17° 38′ and 18° 10′ N. and 75° 9′ and 75° 42′ E., with an area of 619 square miles. It contains 89 villages, including MĀDHA (population, 5,365), the head-quarters. The population in 1901 was 82,984, compared with 92,664 in 1891. The density, 134 persons per square mile, is slightly below the District average. The demand for land revenue in 1903–4 was 1½ lakhs, and for cesses Rs. 10,000. Mādha is an undulating plain, irregular in shape; the tops of all the higher ridges, though covered with yellow stunted grass, are bare of trees, and have a barren soil. The watershed crosses the *tāluka* in the direction of its greatest length from north-west to south-east; and the streams flow eastward into the Sīna and southward into the Bhīma. Excluding the Ashti lake, situated about 15 miles south-west of Mādha town, the land is chiefly watered from wells. The climate is dry, and hot winds prevail from March to May. The rainfall is most uncertain.

Mādha Village.—Head-quarters of the *tāluka* of the same name in Sholāpur District, Bombay, situated in 18° 2′ N. and 75° 31′ E., on the south-east line of the Great Indian Peninsula Railway. Population (1901), 5,365. The town has a fort, a weekly market on Tuesday, and an annual fair in September–October. The fort is now used as a *tāluka* office. Mādha contains a Subordinate Judge's court, and three schools, one of which is maintained by the American Mission.

Madhān.—A fief of the Keonthal State, Punjab, lying between

31° 6′ and 31° 12′ N. and 77° 21′ and 77° 26′ E., with an area of 9 square miles. The population in 1901 was 3,704, and the revenue is about Rs. 3,000. A tribute of Rs. 250 is paid to the Keonthal State. The present chief, Thākur Randhīr Chand, is a minor; and the State is administered by a council, which exercises full powers, but sentences of death require the confirmation of the Superintendent, Simla Hill States.

Madhi.—Place of pilgrimage in the Shevgaon *tāluka* of Ahmadnagar District, Bombay, situated in 19° 9′ N. and 75° 16′ E., 16 miles south-west of Shevgaon and 3 miles south-west of Pāthardi, with a shrine or *dargāh* of a Musalmān-Hindu saint, Shāh Ramzān Mahi Savār or Kānhoba. Population (1901), 844. The shrine is held in great reverence by both Hindus and Musalmāns, and the chief buildings, which are on a small hill, were built by Hindu kings and chiefs. Two domed buildings, where the ancestors of the present Ināmdār and Mujāvar are buried, were built in 1730 by Pilājī Gaikwār, whose name and that of his minister Chimnājī Sāvant are engraved in front of the shrine. On the south-east corner is a domed building called the Bāradarī, with open windows looking down on the village of Madhi below. This was built in 1731 by Rājā Sāhū (1708–49), the grandson of Sivajī, in fulfilment of a vow taken by his mother. Close to Sāhū's building, and almost at the entrance of the *dargāh*, is a lofty drum-house or *nagarkhāna*, with a flat roof reached by a narrow staircase and commanding a very wide view. This handsome building was raised about 1780 by Kānhojī Naik, a rich landed proprietor of Basim in the Nizām's Dominions. There are two resthouses for pilgrims built by Salābat Khān II, the famous minister of the fourth Nizām Shāhi king, Murtaza Nizām Shāh (1565–88). The enclosure of the *dargāh* has two handsome gates, one built by More, a Marāthā chief at the Peshwā's court, and the other about 1750 by Khwāja Sharīf, a great Khoja merchant of Ahmadnagar. Close to this gate is a recently repaired mosque.

Shāh Ramzān Mahi Savār, or Kānhoba as he is generally called by Hindus, is said to have come to Paithan about 1350 (A.H. 752), where he was converted to Islām by one Sadat Alī. After travelling six years he came to Madhi in 1380 (A.H. 782), and died there in 1390 (A.H. 792) at the age of ninety years. The saint is said to have exercised miraculous powers, and his Musalmān name is derived from his having crossed the Godāvari mounted on a large fish, Mahi Savār. A yearly fair is held at the shrine on the dark half of Phālgun (March–April), which is attended by twenty to thirty thousand pilgrims, both Hindus and Musalmāns.

Madhipurā Subdivision.—Northern subdivision of Bhāgalpur District, Bengal, lying between 25° 24′ and 26° 7′ N. and 86° 19′ and

87° 8′ E., with an area of 1,176 square miles. The subdivision, which is bounded on the south by the Ghugri, is a low-lying alluvial tract, intersected by numerous rivers and water-channels and liable to inundation from their overflow. The population in 1901 was 559,310, compared with 575,505 in 1891, the density being 476 persons per square mile. It contains 757 villages, one of which, MADHIPURĀ, is its head-quarters; but no town. The decline in population is accounted for by the fact that a large part of the Madhipurā and Kishanganj *thānas* have been devastated by the ravages of the Kosi, which has deposited a thick sediment of silt.

Madhipurā Village.—Head-quarters of the subdivision of the same name in Bhāgalpur District, Bengal, situated in 25° 56′ N. and 86° 48′ E., on the right bank of the Parwān river, about 52 miles from Bhāgalpur town. Population (1901), 5,188. The neighbourhood is associated with the popular ballad of Lorik, the deified cowherd. The village contains the usual public offices; the sub-jail has accommodation for 15 prisoners.

Mādhopur.—Village in the Pathānkot *tahsīl* of Gurdāspur District, Punjab, situated in 32° 22′ N. and 75° 37′ E. Population (1901), 1,360. Opposite the village are the head-works of the BĀRI DOĀB CANAL.

Madhra.—Former name of KALLŪR *tāluk*, Warangal District, Hyderābād State.

Madhubanī Subdivision.—Northern subdivision of Darbhangā District, Bengal, lying between 26° 2′ and 26° 40′ N. and 85° 45′ and 86° 44′ E., with an area of 1,346 square miles. The population rose from 1,014,700 in 1891 to 1,094,379 in 1901, when there were 813 persons to the square mile. It is less densely inhabited than the rest of the District, and is the only subdivision where there is much room for further expansion. It consists of a rich alluvial plain, traversed by ridges of uplands suitable for *rabi* cultivation; but the staple crop is winter rice, and the produce of Alāpur, Jabdi, and Bachaur is famous all over Bihār. It contains one town, MADHUBANĪ (population, 17,802), its head-quarters; and 1,084 villages. NARAHIĀ is an important centre of the Nepālese grain traffic; at JHANJHĀRPUR on the railway brass utensils of a superior quality are manufactured; and at SAURĀTH an annual *mela* or religious festival is held. Sugar is extensively manufactured throughout the subdivision. JAYNAGAR is the site of a mud fort.

Madhubanī Town.—Head-quarters of the subdivision of the same name in Darbhangā District, Bengal, situated in 26° 21′ N. and 86° 5′ E., about 16 miles north-east of Darbhangā town. Population (1901), 17,802. Madhubanī is an important trading centre on the road from Sakri station on the Bengal and North-Western Railway to

the Nepāl frontier. It was constituted a municipality in 1869. The income during the decade ending 1901-2 averaged Rs. 16,000, and the expenditure Rs. 12,000. In 1903-4 the income was Rs. 18,000, mainly derived from a tax on persons (or property tax) and the receipts from municipal markets; and the expenditure was Rs. 16,000. The town contains the usual public offices; the sub-jail has accommodation for 14 prisoners.

Madhumatī.—One of the principal distributaries of the GANGES in Bengal and Eastern Bengal and Assam, which leaves the parent stream near Kushtia, in Nadiā District, in 23° 55′ N. and 89° 9′ E., where it is called the GARAI. Thence flowing south it assumes the name of Madhumatī. It enters Backergunge District near the north-west corner at Gopālganj; and from this point it takes the name of Baleswar, and forms the western boundary of the District, still flowing south, but with great windings in its upper reaches. It then crosses the Sundarbans, separating the Khulnā from the Backergunge portion of that tract, and enters the Bay of Bengal, after a course of 230 miles, in 21° 52′ N. and 89° 59′ E., under the name of Haringhāta, forming a fine deep estuary 9 miles broad. The river is navigable to opposite MORRELGANJ in the District of Khulnā by sea-going ships, and throughout its entire course by native boats of the largest tonnage. Although there is a bar at the mouth of the Haringhāta with only 17 feet of water at low tide, the navigation is easier than that of any other river at the head of the Bay of Bengal. The great banks or shoals which have formed at each side of the mouth and which extend seaward for several miles protect the entrance, and act as breakwaters to the swell. The river is not disturbed by the 'bore,' which visits the Hooghly and the Meghnā, and it is also free from mid-channel dangers. Among its chief tributaries are the Kacha in Backergunge; the Kālia or Gāngnī river, which receives a portion of the waters of the Nabagangā through the Bankarnali in Jessore; and the BHAIRAB in Khulnā.

Madhupur.—An extensive jungle, known also as the 'Garh Gazāli,' in Eastern Bengal and Assam, stretching northwards from the northern part of Dacca into the heart of Mymensingh District, almost as far as the town of Nasīrābād. The tract is slightly elevated, averaging about 40 feet above the level of the surrounding plain, with small hills nowhere exceeding 100 feet in height. It belongs to an older alluvial formation than the rest of the country, and consists of a stiff layer of red ferruginous clay of a considerable depth, resembling that of the Bārind in North Bengal. It is covered with a dense forest of tall trees overrun with creepers, with numerous large grasses at their base. The forest is similar in composition to that under the Himālayan range, containing a mixture of *Leguminosae*, *Combretaceae*, *Anacardiaceae*,

Urticaceae, *Meliaceae*, and *Sapindaceae*. The chief tree is the *sāl* (*Shorea robusta*), which grows throughout the tract and supplies timber and charcoal. The open parts make good pasture grounds in the cold season, and a considerable trade is carried on in bees-wax and honey. In recent years it has been opened up to some extent by roads leading to the railway, and portions of it have been brought under cultivation.

Madhupur.—Town in the Deogarh subdivision of the Santāl Parganas District, Bengal, situated in 24° 15′ N. and 86° 39′ E., on the chord-line of the East Indian Railway. Population (1901), 6,840. Madhupur is the junction for the branch line to the Gīrīdīh coal-fields; it is a growing town largely used as a health resort, and many residents of Calcutta and Government pensioners have built houses here.

Madhya Desa ('the middle country').—At present this name is not infrequently used by Hindus for the Ganges and Jumna Doāb. It had a more extended meaning formerly; and in early times it probably included the tract lying between the place (at Bhatner in Rājputāna) where the Saraswatī disappears on the west and Allahābād on the east, stretching to the Himālayas on the north and the Vindhyas on the south. This was the area within which Brāhmanism had its rise and full development, and it is still regarded as a holy land of Hinduism. But according to Varāha Mihira, the Sanskrit geographer of the sixth century A.D., the Madhya Desa extended as far west as Mārwār, while the Yāmunas, or people living on the banks of the Jumna, were partly in this and partly in the northern country, and the Vindhyas are wholly excluded. Albirūnī explained it as the country lying round Kanauj.

[Lassen, *Ind. Alt.*, vol. i, p. 92; Fleet, *Ind. Ant.*, 1893, p. 169.]

Madhyārjunam.—Town in Tanjore District, Madras. *See* Tiruvadamarudūr.

Madras Presidency (officially styled the Presidency of Fort St. George).—The southernmost Province of the Indian Empire. With the five Native States (Travancore, Cochin, Pudukkottai, Banganapalle, and Sandūr) which are subordinate to it, and the State of Mysore and the tiny British Province of Coorg which are all but surrounded by it, it occupies the whole of the southern portion of the peninsula. The west coast is washed by the Indian Ocean, and the east coast by the Bay of Bengal; but the northern boundary has been formed by the accidents of history and consists, from east to west, of Orissa, the Central Provinces, the State of Hyderābād, and the southernmost Districts of the Presidency of Bombay. Excluding the five Native States, the area of the Presidency is 141,705 square miles, or 20,000 square miles larger than the United Kingdom.

The Native States occupy an additional area of about 10,000 square miles.

Fort St. George is the fortress of Madras City, the capital of the Presidency, and was so named by its founders in 1640 after England's patron saint. The derivation of the word 'Madras' has led to much ingenious speculation, but is still uncertain. Most of the etymologies suggested are overthrown by the fact that the place was known as 'Madraspatam' before ever the English arrived at it.

Physical aspects.

The key to the greater part of the conditions prevailing in the Presidency—its climate, its rainfall, its rivers and the irrigation dependent upon them, much of its history, its tribes and castes and the varying customs they follow, the variations in the density of its population, and the distribution of its languages—is to be found in the conformation of the hill-ranges. Along the whole length of the western coast, at a distance from the sea varying from 50 to 100 miles, runs the range of the WESTERN GHĀTS, a steep and rugged mass averaging 4,000 and rising to 8,000 feet, the only break in which is the Pālghāt Gap in Malabar, 16 miles wide. Down the eastern coast, but at a greater distance from the sea, sweeps the chain of the EASTERN GHĀTS, a less marked formation usually about 2,000 feet in height. On their way southwards these two ranges eventually meet, and at the point of junction is the striking upheaval known as the NĪLGIRI HILLS. North of this plateau lies an elevated table-land, from 1,000 to 3,000 feet above the sea, upheld by the hills lying east and west of it, and consisting of Coorg, the State of Mysore, and the parts of the Madras Presidency immediately on the fringe of the latter.

Portions of both the Eastern and the Western Ghāt ranges are distinguished by special names. The spurs of the former which run through Kurnool District are called the NALLAMALAIS[1]; a range of the latter lying in Coimbatore District and Travancore State is known as the ANAIMALAIS; and a continuation of the same hills situated in Madura District is called the PALNIS. Besides these outliers from the two main chains, several isolated blocks of hills are not connected directly with either. Chief of these are the SHEVAROYS in Salem, the PACHAIMALAIS and KOLLAIMALAIS in the same District and Trichinopoly, and the JAVĀDI HILLS in North and South Arcot.

The Presidency thus consists of a narrow strip of land between the Western Ghāts and the Indian Ocean, a broader strip between the Eastern Ghāts and the Bay of Bengal, and an elevated tract lying midway between the two. The strip along the Bay of Bengal is not, however, homogeneous throughout, as the other two tracts may be said to

[1] The termination *-malai* is the Tamil for 'hill.'

be. Through the western parts of its three northernmost Districts—Ganjām, Vizagapatam, and Godāvari—runs a portion of the Eastern Ghāts; and these tracts therefore not only differ in climate and physical aspects from the rest of those Districts, but the inhospitable jungle that covers them is occupied by primitive forest tribes which differ in religion, language, customs, and ethnic characteristics from the dwellers in the plains below. Within them the ordinary law of the land is in force to only a limited extent, while the Collectors exercise extended and special judicial authority (both civil and criminal) under the title of Agents to the Governor. These areas are therefore commonly known as the Agencies or Agency tracts. The rest of the strip along the shore of the Bay of Bengal is fairly uniform climatically and geographically; but the inhabitants of the northern part of it are Telugus, while those in the south are Tamils. These two races differ in language and other essential particulars to such an extent that it is necessary to treat separately the areas they occupy.

We thus have five natural divisions in the Madras Presidency: namely, (1) the strip facing the Indian Ocean, which may be called the West Coast; (2) the central table-land, usually known as the Deccan; (3) the Agencies; (4) the East Coast division proper, running as far south as Nellore District; and (5) the South division, comprising the remainder of the Presidency. The Districts included within each of these are shown in Table I at the end of this article (p. 350) which gives particulars of their area, population, &c. The limits of three of them—Godāvari, Kistna, and Nellore—have, however, been very recently (1904) altered. The work of administration had become so heavy that, to relieve their Collectors, they have been formed into the four Districts of Godāvari, Kistna, Guntūr, and Nellore. The first of these comprises the former Godāvari District to the north and east of the Godāvari river, plus the Agency of Polavaram on the south of it; Kistna District includes the rest of the tract between the Godāvari and Kistna rivers; Guntūr is made up of the country south of the Kistna with the Ongole *tāluk* of Nellore; and Nellore consists of the former District of that name less this one *tāluk*. Another change, made in 1906, which however hardly affects the statistics given in Table I, has been the separation of Anjengo and Tangasseri from the Collectorate of Malabar and their formation into a new District of Anjengo under the administrative control of the Resident in Travancore and Cochin. The two places are small outlying patches of British territory, 211 acres and 96 acres in extent, situated at a long distance from Malabar, within Travancore limits; and difficulty of access to them had been a strain on the Malabar officials quite incommensurate with their intrinsic importance.

The key to the river system of the Presidency, as has already been

said, is the conformation of its hills. No river has anywhere burst its way through the Western Ghāts; and, except in the natural division of the West Coast, the whole trend of the drainage is thus from west to east into the Bay of Bengal. Of the three great rivers—the GODĀVARI, the KISTNA, and the CAUVERY—the first two rise in the Bombay Presidency within 50 miles of the Indian Ocean and flow for more than 800 miles right across the peninsula, while the third rises in the Western Ghāts in Coorg and similarly passes eastwards across the peninsula into the Bay of Bengal. All three have forced a passage for themselves through the Eastern Ghāts. The less important rivers, such as the PENNER, the PONNAIYĀR[1], and the TĀMBRAPARNI, all follow the same general direction. In the early part of their courses these rivers usually serve rather to drain the country than to water it, as they run rapidly in deep beds; but as they approach the more level ground on the coast, dams have been thrown across all of them and their water has been thereby turned to account for irrigation. The deltas of the Godāvari, Kistna, and Cauvery, in particular, are covered with wide expanses of irrigated crops which in even the severest droughts hardly ever fail.

It follows from what has been said regarding the hill ranges of Madras, and from the description below of the great variations in its temperature and rainfall, that the Presidency includes many varieties of climate, and therefore of scenery. Perhaps least inviting are the level, sandy, saline tracts which fringe several of the coast Districts, notably Madura and Tinnevelly. Next in monotony come the treeless stretches of black cotton soil, such as the eastern half of Bellary. The Deccan Districts with their stunted trees, their usually barren soil, and their endless successions of rocky hills, certainly repel admiration by their infertility; but an artist would find ample compensation in their wonderful colouring, which changes from hour to hour in sympathy with the infinite variety of light and atmosphere. The deltas of the three great rivers are the very opposite of the Deccan, presenting an interminable sea of green or golden rice-fields, dotted with villages surrounded by palm-trees. But in all the low country the most beautiful scenery is that of the West Coast, with its heavy tropical vegetation, always green and always flourishing, and its towering background of the Western Ghāts. Among the hills, the lower ranges are always picturesque, each in its own particular manner, while those in which the rainfall is sufficient to nourish the thicker kinds of jungle-growth deserve a stronger epithet. The larger ranges are unsurpassed in boldness and grandeur by anything south of the Himālayas, while on the highest elevations of all—the Nīlgiri and Anaimalai plateaux—

[1] *Aru* is the Tamil for 'river,' and so appears as a suffix to the English form of the names of many rivers.

the quieter half-English scenery has a special charm which perhaps appeals to the European more strongly than even the more florid beauties of the intermediate levels.

Madras has no lakes, properly so called. The CHILKA LAKE at its extreme northern point in Ganjām and the PULICAT LAKE in Nellore are merely brackish lagoons separated from the sea by narrow ridges of sand, which have been formed by the constant antagonism between the tides and the streams draining the country. The COLAIR LAKE, which lies between the deltas of the Godāvari and Kistna, is a natural depression which the land-making efforts of the two rivers on each side of it have not yet succeeded in filling up. Reclamations and embankments are yearly reducing its extent. Along the west coast, the struggle between the rivers and the sea has resulted in the formation of a curious string of backwaters, which fringe the greater part of the shore of South Kanara, Malabar, and Travancore. The largest of them, the Cochin backwater, is 120 miles in length. They are much used for navigation.

The only islands of importance are the LACCADIVES off the coast of Malabar and South Kanara, and the island of PĀMBAN between Madura District and Ceylon.

Though the Presidency is washed by the sea for 1,700 miles, there is not a single natural harbour capable of accommodating ocean-going vessels in the whole of this long line of shore, either on the east coast or on the west. Except Madras city, which possesses an artificial harbour formed by running out masonry groins into the sea, the various ports are merely open roadsteads, in which ships lie at anchor and discharge their cargo into light boats capable of crossing the never-ceasing surf. Such of these roadsteads as are situated near the mouths of any of the great rivers are in constant danger of being silted up, and a number of places which within historical times were famous ports have now been left high and dry by the retreat of the sea. The possibility of making an artificial harbour in the small bay at Vizagapatam has been investigated, and it is in contemplation to construct a port on Pāmban (Rāmeswaram) Island.

[1] Geologically, the Presidency is to a very large extent built up of Archaean gneisses, schists, and ancient plutonic rocks. These outcrop over all the elevated parts which lie above the deltaic shore belt and are not concealed by younger groups. Upon this platform there repose one large remnant of the younger Purāna group, the isolated Cuddapah and Kurnool geological basin; the south-eastern extremity of the still younger Lower Gondwāna formation of the

[1] The account which follows is based on material furnished by Mr. C. S. Middlemiss of the Geological Survey of India. Further particulars will be found in the *Memoirs* and *Records* of the Survey.

Godāvari basin; and a coastward broken belt of Upper Gondwāna and Cretaceous rocks.

The Archaean group of ancient crystalline and metamorphic rocks is one that remained practically undifferentiated for a long time. Two distinct landmarks in the advance of our knowledge stand out prominently in comparatively recent years: namely, the recognition and mapping over large areas by Mr. R. Bruce Foote of a younger sub-group, the Dhārwārs of Southern India; and Mr. T. H. Holland's discovery of the charnockite family of genetically related Archaean plutonic intrusive rocks.

The Archaeans of the Madras Presidency may now be divided into: (3) Dhārwārs; (2) thin-bedded schistose gneiss; and (1) oldest gneiss.

Sub-group No. 1 probably embraces the oldest-known layer of the earth in this part of the world. It is particularly prominent in the flat elevated plains of Coimbatore and the middle and southern parts of Salem, in the south of Malabar and Bellary, and in the western parts of the Vizagapatam Agency tracts, Ganjām, and Nellore. Steatite, which is a common accessory in some parts, is frequently utilized for small domestic articles, such as fire-proof plates and bowls, while in several places in the south-west of Bellary a hard variety is worked into beautiful carved temples.

Sub-group No. 2 is less homogeneous in aspect than No. 1. It contains much mineral wealth. It is sparsely dotted about in Salem and Coimbatore, where it includes crystalline marble and iron ores. Probably, also, the enormous iron ore deposits of Kanjamalai, the Javādi Hills, and other localities belong to it. These have been worked from time immemorial, and were once smelted by the Porto Novo Iron Company. The lowest and richest band at the foot of Kanjamalai is 70 feet thick, and gives an average yield of 40 per cent. of pure iron.

The Dhārwārs, sub-group No. 3, have an extensive development in Mysore, and are also to be traced through Bellary, Anantapur, Cuddapah, and the extreme northern parts of Salem, and possibly in Coimbatore and the Wynaad. They are of economic importance, because of the bedded hematitic ores of great richness in their lower parts, which are especially abundant in the Native State of Sandūr. They also carry all the chief gold-bearing reefs that have yet been discovered in Southern India, including the important Kolār Gold Fields in Mysore.

The Archaean plutonic rocks are distinguished from the three sub-groups already described by possessing more uniformity of structure over large areas, and a mineral composition resembling that of known igneous rocks. Hence they are considered to be consolidated relics

of what were once fused magmas. The best known of them is Mr. Holland's charnockite series. Besides its first described locality at St. Thomas's Mount near Madras, this appears in the well-marked, rugged masses of the Nīlgiris, Shevaroys, and Palnis, and occurs as bands in Coimbatore, Salem, and Vizagapatam, as well as in Ganjām, South Arcot, and the Wynaad. In the neighbourhood of Pālakod in Salem it carries corundum crystals formed as a contact mineral. Test excavations have yielded $78\frac{1}{2}$ lb. of corundum to the ton of matrix. In the upland *tāluks* of Salem a very different and characteristic biotite gneissose granite builds moderately elevated plateaux surmounted by cones and *drugs*. The same variety is met with in the Wynaad, Bellary, Vizagapatam, and North and South Arcot, where it is frequently coarsely porphyritic, forming bold and picturesque domes of rock.

After the formation of these three Archaean sub-groups and their modification and metamorphism by reason of the invasion of the plutonic magmas just considered, a vast interval of time appears to have ensued, during which all the rock stages up to the top of the Dhārwārs suffered a final compression into closely packed folds, with upheaval and erosion by atmospheric agencies into great table-lands or denudation planes, before being once more depressed below the ocean to receive as sediments the still very ancient Purāna group which comes next above them.

About the end of the Eparchaean interval, or during the early parts of the Cuddapah epoch, come a number of younger intrusive igneous rocks. Among the pegmatites in these, especially in Nellore, good mica for economic purposes is found. Other pegmatites have yielded aquamarine crystals in times past (as at Pattalai in Coimbatore), as well as fine quartz crystals and amethyst; and yet others near Sivamalai in Coimbatore have developed corundum crystals in considerable quantity, which have been dug and used by lapidaries.

Dikes of various descriptions are a very common feature over large areas of Central and Eastern Madras—especially in the Deccan Districts, North Arcot, and Salem, where they sometimes form marked features across the plains. There are several examples of dunite or olivine-chromite rock, the principal of which forms a great mass in the CHALK HILLS near Salem, where chromite mines have been worked and veins of magnesite quarried.

The Purāna group of azoic sedimentary rocks includes in Madras what are known as the Cuddapah and Kurnool series. These are typically developed in the Districts of the same names, where they form a great crescent-shaped outlier or completely isolated basin, 200 miles long by 100 wide in its widest part. Their much more

gently inclined strata give to the country an array of parallel scarps, ridges, and flat-topped plateau-like hills, averaging 1,750 feet in elevation, which easily mark it off from the surrounding lowlands and rugged uplands of Archaean origin.

The lower series, the Cuddapahs, are more than ten times as thick as the overlying Kurnools. The latter series embraces within the moderate thickness of 1,200 feet four stages in conformable descending order. The last and lowest member of these, the Banganapalle stage, is a sandstone with grits and pebble beds composed of clay, quartzite chert, and jasper pebbles; and diamonds have been found here by the natives, who have carried considerable workings into the rock and also among the distributed surface gravels derived from them. The diamonds are octahedra with curved facets, and from their freshness it has been considered that they are inherent in the rock and do not occur as pebbles.

The succeeding rock system, the first in the Presidency which is fossiliferous, begins with a formation, the Gondwāna, which is a characteristically Indian fresh-water deposit with plant remains and coal-beds. Only the south-eastern extremity of one shallow trough of the Lower Gondwānas stretches into the Madras Presidency. This outcrop occurs on the left bank of the Godāvari river between 30 and 40 miles west-north-west of Rājahmundry. It includes 5 square miles near BEDADANŪRU of coarse, pale, felspathic sandstones with coaly seams, and a few similar small patches along the Godāvari, partly in the Nizām's Dominions and partly in British territory. The value of the coal-fields here has long been an important question, since they constitute the only known source of that mineral in Madras. The Bedadanūru field was originally tested by Dr. W. King, who reported unfavourably on it; but there has recently been a revival of interest in all the fields, with applications for prospecting licences.

The Upper Gondwānas are represented only by a broken belt of outliers, 15 miles broad in their widest part, along the east coast of the Presidency. This series comprises a threefold division, from 200 to 300 feet thick, of sandstones above and below with shales between. In some of the sandstones plant fossils have been found and in the shales marine fossils—among them ammonites.

In Trichinopoly District a narrow strip of Upper Gondwānas underlies on the west the Cretaceous beds of that area. They are very richly fossiliferous and have yielded altogether about 800 species, of which a large proportion are cephalopods and gastropods.

Along the east coast, from Rājahmundry to Tinnevelly District, there is a peculiar formation consisting of soft sandstones and grits, which form a low slope dipping at a very slight angle towards the sea. They contain silicified wood in large quantity. Similar beds, the

Warkalli beds, are found on the west coast near Quilon in analogous positions.

The formation known as laterite, which is almost peculiar to India, or at least to the tropical parts of the Old World, has generally the appearance of a soil. In its normal form it is a porous argillaceous rock, much impregnated with iron peroxide. It is mottled with various tints of brown, red, and yellow, and a considerable proportion sometimes consists of white clay. It hardens on exposure and makes a useful building stone. Various forms of it are known. One is found along all the coast regions of Madras, and another on some of the higher plateaux inland (where it is about 80 feet thick), especially in the neighbourhood of Bellary and Cuddapah and in the Vizagapatam Agency, as well as on the Nīlgiris and Palnis to a modified extent. The theories to account for it are far from satisfactory at present. Some of it has recently been shown to contain a large percentage of hydrates of alumina, the ores from which aluminium is made.

The Billa Surgam cave deposits in Kurnool District are encrusted with stalagmite. They consist of red marl full of mammalian bones, including five species which are now extinct. Some of the living forms are African species.

The recent deposits of Madras include the older alluvium of the larger rivers, such as the Godāvari, Kistna, Cauvery, &c.; the coast and deltaic alluvium, from 50 to 500 feet thick; and all the younger alluvium of the present river-beds, the mud-banks of the coast, and the peat deposits on plateaux such as the Nīlgiris. At Pondicherry this formation has yielded an artesian water supply. In Tinnevelly District evidence of recent subsidence is furnished by a submerged forest.

The botany of Madras is of historic as well as intrinsic interest. While its diversities of configuration and great geographical range from north to south afford room for many different species, the Presidency has been a centre of botanical exploration for at least 250 years.

For a long time, indeed, Madras was the pioneer in the study of Indian botany. The first recorded work comes from Malabar, while it was in the hands of the Dutch. Van Rheede's *Hortus Malabaricus*, appearing at the close of the seventeenth century, is still a standard work of reference. Later, the centre of activity was transferred to the east coast, and a long list of enthusiastic collectors might be given. Chief among them should be mentioned Koenig, a follower of Linnaeus, and an officer in the Danish colony of Tranquebar. With him were soon associated the Danish missionaries—Rottler, Klein, and Heyne—who formed the nucleus of the 'United Brothers,' a band of devoted botanical students. Plants were carefully collected

and examined, specimens were exchanged, and, as the sphere of their work gradually extended, the flora of the northern part of the Presidency, and finally that of Bengal, received attention. Among the later members of the Brotherhood the most prominent South Indian workers were Roxburgh, who resided at Madras and Sāmalkot, and Sonnerat and Leschenault, who collected many of the mountain plants. Roxburgh described many of his species in his magnificent *Coromandel Plants*, published almost exactly a hundred years after Van Rheede's work.

With the removal of Roxburgh to Calcutta, however, the history of botany in the Madras Presidency practically ceases, the only later works of importance being Wight's *Icones Plantarum* and *Spicilegium Nilgherrense*, and Beddome's *Flora Sylvatica* and *Ferns of Southern India*. Finally, Hooker's monumental *Flora Indica* contains many hitherto unrecorded facts, as well as a summary of all previous work.

The different species of plants in Madras may be separated conveniently according to the physical conditions of the country, and thus present to the explorer a number of well-marked and widely differing floras. By far the most interesting series is to be found in the moist, evergreen forests of the Western Ghāts. From the borders of the Bombay Presidency to the extreme south of the peninsula a succession of great forests, largely unexplored, abound in botanical rarities and include many timber trees of the greatest value. Here and there the mountains raise their shoulders above the evergreen forests, and a sub-alpine flora is met with of orchids, gentians, and dwarf, large-flowered species. The Nīlgiris, Anaimalais, Palnis, and isolated peaks along the whole western range offer examples of this interesting flora.

On the western side, the evergreen forests descend far down towards the coast, and the change to the ordinary vegetation of the moist tropical plains is gradual and inconspicuous. On the eastern side of the Ghāts, however, a very different state of things is found. The evergreen forests are soon left behind, and the flora assumes a drier, harsher appearance. The trees cast their leaves in the hot season, and the prevalence of forest fires has caused large areas to produce nothing but coarse grasses. This 'deciduous' forest extends all along the eastern side of the Western Ghāts, along the borders of the Mysore plateau, and over the whole of the Eastern Ghāts as far as the borders of Orissa. It forms the great game country of the Presidency, and abounds in valuable economic products.

The lower hills of the eastern side of the Peninsula are less interesting from the botanical point of view. Their vegetation is a mixture of evergreen and deciduous plants of marked xerophytic or

drought-loving character, low scrub jungle, and thorny bushes, intermingled with fleshy *Euphorbiaceae*, *Asclepiadeae*, and other drought-resisting plants. This dry flora passes over finally into one of almost desert character in the great stretches of uncultivated land in the plains. Of greater interest to the botanist are the red-sand deserts of Tinnevelly, called locally *teris*; the salt-collecting grounds, with their fleshy saline flora; and the mangrove swamps, with their half-submerged brackish-water forms.

Lastly, the great areas of cultivated land, from Orissa to Tinnevelly, abound in a wealth of weeds and shrubs, scattered almost impartially and giving this wide region a fairly uniform appearance, although their dissemination is largely due to cultivation. Many of these plants are common to other parts of the tropics, and perhaps this portion of the Presidency has the least characteristic flora.

Collections have been made in Madras ever since Van Rheede's time, but few of the older sets are now in the Government Herbarium. An early Madras collection appears to have been formed, but it was broken up many years ago and its contents distributed. To Dr. Bidie and the late Government Botanist, Mr. Lawson, probably belong the credit of the foundation of the present Herbarium, in which many of Wight's specimens are to be found, as well as later collections by Gamble, Bourdillon, and other botanists. A systematic survey is now being carried on under Government auspices, and the Madras Herbarium is being rapidly added to. The present number of sheets is about 40,000, most of which are purely South Indian forms. The flora, as is to be expected in a peninsula of such extent, has numerous indigenous species. In the extreme south there are indications of relationship with Ceylon, while in the northern hills many of the Central Indian types are met with. For the rest, a great multitude of forest and other plants are not found elsewhere, and this fact alone makes the thorough study of the flora a matter of considerable importance.

The distribution of the larger fauna of the Presidency naturally varies with the climate, the altitude, and the nature of the cover available; and as the low country seldom contains any considerable jungle the shyer animals are confined to the hills. On the plains, the Indian antelope or 'black buck' is found in most Districts except on the west coast, and is especially common in the Deccan. The hunting leopard and the Indian wolf, both rare, are also found in the low country, but not on the west coast. Hyenas occur in the plains of most Districts. On the lower hills among the sparser jungle, the *nīlgai* and the four-horned antelope are seen here and there, but again not on the west coast; and the Indian gazelle or 'ravine deer' (*Gazella bennetti*) is met with as far south as the Deccan. Tigers,

leopards, black bear, spotted deer, and wild hog haunt both the plains and the hills, but require thick cover. In the heavier jungle of the hills are found the little mouse deer, which is common in Malabar, the barking-deer, and the *sāmbar*. The last suffer much from the persecution of packs of wild dogs, which in parts are increasing in numbers and boldness. Bison or *gaur* are common on the Western Ghāts, including the Anaimalais and the Palnis, and on the Eastern Ghāts north of the Kistna river. Some are also left on the Javādi Hills. In the Vizagapatam Agency, but nowhere else in the Presidency, a few wild buffaloes survive. On the Nīlgiris, the Palnis, and on the Western Ghāts from the Anaimalais to nearly as far south as Cape Comorin the Nīlgiri ibex (*Hemitragus hylocrius*), which occurs nowhere else, is met with. The shooting of elephants on Government land, except specially proclaimed 'rogues,' is forbidden. These animals are common in the Western Ghāts, and in parts of Malabar are a serious nuisance to cultivators living near the hills. On the Anaimalais a number are annually caught in pits by the Forest department; and the best of these are broken in and used either for timber-dragging or as baggage animals for the officials in the Agencies, where transport is unusually difficult, while the remainder are sold. Government pays rewards for the destruction of 'rogue' elephants, tigers, leopards, bears, and wolves.

The climate and seasons of the Presidency depend upon the variations in temperature and rainfall in different parts. Table II at the end of this article (p. 351) gives statistics of the temperature at selected stations in four representative months—January, the coolest month; May, the hottest; July, when the south-west monsoon has broken; and November, when the north-east monsoon is blowing. Of the several District head-quarters, Tinnevelly has the highest annual mean temperature (85·4°), closely followed by Cuddapah (84·9°), Nellore (84·7°), and Trichinopoly (84·2°). But Tinnevelly attains this unenviable position less by its great heat in the summer than by the absence of moderate coolness in the cold season. In March, April, and May, Cuddapah is considerably the hottest station in the Presidency. The three northern Districts, with Bellary, Anantapur, and Kurnool, have the advantage of a cooler cold season than any of the rest. The altitude of the Nīlgiris gives a temperature totally different from the other Districts. The annual mean at Wellington is only 62°, and in December and January slight frosts are usual.

The local distribution of the rainfall depends mainly upon the conformation of the hill ranges. Two chief currents bring practically the whole of it.

The chief rain-bearing current is the south-west monsoon, which blows from the Indian Ocean from the end of May to the end

of September. This carries far more moisture than the north-east monsoon; but the rain-clouds are unable to pass over the Western Ghāts, so that while in Malabar and South Kanara, on the west coast, the rain due to this monsoon varies from 100 to as much as 150 inches, the fall in the neighbouring Districts on the other side of the range (except in a tract corresponding roughly to the Agencies in the north) is everywhere under 25 inches, and in many places (e.g. the central plain of Coimbatore and Tinnevelly District) even less than 5 inches.

As the force of the south-west monsoon in north-eastern India dies away, the current curves and drives inland from the Bay of Bengal during October, November, and December, being generally known as the north-east monsoon. The rainfall due to this is heaviest along a strip of the coast running from Pulicat Lake to Point Calimere in Tanjore District, where it averages over 25 inches; but as the clouds drift inland and part with their moisture they give gradually less rain, the amount received dropping to under 25 inches in the belt behind the strip of country above mentioned, and to less than 15 inches in the tract east of that again. Still farther east, the Eastern Ghāts check the course of the clouds, and in the areas west of this range, such as the Deccan, the fall is less than 10 inches.

Table III at the end of this article (p. 351) gives the average rainfall in each month at certain typical stations. For the year as a whole the heaviest fall in the Presidency is in the inland parts of South Kanara, where it is about 180 inches. The Wynaad country in Malabar comes next with 150 inches. In 1882 the amount registered at Vayittiri in the Wynaad was as much as 290 inches. The two driest spots in the Presidency are the centres of Bellary (annual fall 19 inches) and of Coimbatore (21 inches).

Cyclones may be said to be common all along the coast of the Bay of Bengal. Some account of those which have visited MADRAS CITY, where the record of them is naturally the most complete, will be found in the article on that place. They are usually most severe at the changing of the monsoons. Perhaps the most disastrous on record was that which passed over Masulipatam in Kistna District in 1864. It was accompanied by a storm-wave, which swept over 80 miles of the low coast, reaching in places as far as 17 miles inland, and drowned 30,000 people.

Floods are constant, though less so on the west coast, where the rapid streams of the rivers have cut themselves deep beds. Accounts of the more serious will be found in the District articles. The Kistna and the Ponnaiyār rivers are especially liable to heavy floods.

About fifty earthquakes were recorded in the Presidency during the last century, but they were all of a mild character.

History.

The earliest inhabitants of Southern India of whom any traces now remain were the prehistoric builders of the cairns, barrows, kistvaens, and dolmens found in many Districts; the makers of the rude stone weapons discovered in considerable quantities on the tops of the rocky hills of the Deccan; and the authors of the more finished utensils and implements now in course of excavation at the wonderful burial-grounds which have recently been discovered at ADICHANALLŪR and other places in Tinnevelly. Except that they may be declared to have passed from a Palaeolithic, through a Neolithic, to an Iron age, little is known or can be conjectured regarding these ancient peoples. Presumably they were of the stock named Dravidian, which is distinguished from more northern ethnic families by its comparatively low stature, its dark skin, its high nasal index, and its use of the languages, so prominent in the Presidency, known as the Dravidian family.

The great gulf which yawns between them and the earliest historical data is vaguely bridged by legends and traditions, such as the story of Rāma's expedition through the Deccan and across ADAM'S BRIDGE to Ceylon in quest of his wife Sītā (whom Rāvana, the ten-headed king of that island, had carried off), or the many local *purānas* which still remain in the keeping of the temple priests. Some of these legends have been held to refer to the great immigration of conquerors and settlers from Northern India which undoubtedly took place at an early period; but they are scarcely serious history, and not until the Muhammadans appear upon the scene is the literature of the country of any real value to the annalist.

The gap is filled to some extent by the many inscriptions on stone which record gifts to temples, by grants of bygone dynasties engraved on copper, and by coins. The transcription and examination of these is now proceeding under expert supervision and in a systematic fashion, but the work has not yet proceeded far enough to enable any final account to be written of the early fortunes of the South of India.

The earliest historical evidence is that furnished by the edicts of the Buddhist emperor Asoka which have been discovered at JAUGADA in Ganjām and at a village in Mysore close to the border of Bellary. These perhaps go to show that about 250 B.C. at least the northern half of the Presidency formed part of the Mauryan dominions.

The south of it was divided between the PĀNDYAS of Madura, who governed the extreme south; the CHOLAS, who held the country

north and east of them; and the CHERAS (Keralas), who ruled the west coast. At some period subsequent to Asoka, the dynasty of the Pallavas of Conjeeveram rose into much prominence and extended its sway along the east coast as far north as Orissa.

In the north, Mauryans were succeeded by the Andhras. They were Buddhists, and by them were erected the splendid marble *stūpa* at AMARĀVATI and the other Buddhist buildings of which the ruins occur in Kistna and Guntūr Districts. Their curious leaden coins are still found in some numbers in those parts.

About the fifth century after Christ the Chālukyas, who were immigrants from more northern parts, began to grow into importance in the Western Deccan. In the seventh century they divided into two branches, a Western and an Eastern. The latter conquered the Pallava kings of the VENGI country — the tract between the Kistna and Godāvari rivers and south of KALINGA — and settled in that locality, while the former remained in its original home.

Alongside it, in the south-west of the Deccan and the north of Mysore, the Kadambas, whose capital was at Banavāsi in North Kanara, now rose to power. They defeated the Pallavas of Conjeeveram and continually harassed the Western Chālukyas.

The latter were also vigorously opposed by the Rāshtrakūtas of Mālkhed in the present Nizām's Dominions, who eventually overthrew them and were supreme in the Western Deccan from about A.D. 750 to 950.

At the end of this period the Western Chālukyas once more rose to prominence and maintained their position until A.D. 1189, when they were finally overthrown by two of their own feudatories, the Yādavas of Deogiri (Daulatābād) and the Hoysalas of Dorasamudra, the modern Halebīd in Mysore.

Meanwhile, in the south and the east, the Cholas of Tanjore were rapidly extending their boundaries. By 999 they acquired by conquest the whole of the coast possessions of the Eastern Chālukyas. They had already subverted both the Pallavas and the Pāndyas, annexing the dominions of the former and controlling the destinies of the latter. These events form the first great landmark in the history of Southern India. But the Chola expansion westwards was checked by the Hoysalas, and towards the end of the twelfth century their territory in the north was taken from them by the Ganpatis of Warangal (Orangal).

Thus at the end of the thirteenth century the three greatest dynasties in Southern India were the Hoysalas, the Cholas, and the Pāndyas. At the beginning of the fourteenth century, however, a new power—the Musalmāns of Delhi—appeared suddenly upon the scene. In 1303 the ruling king of the Khiljī dynasty of Delhi

sent his first expedition into the Deccan; and seven years later, a date which makes the second landmark in the history of Southern India, the armies of his general, Malik Kāfūr, swept like a torrent down the peninsula. The Yādavas, Hoysalas, Ganpatis, Cholas, and Pāndyas were in turn defeated and suppressed. Anarchy followed over the whole South—Musalmān governors, representatives of the old ruling families, and local chiefs struggling for supremacy, until out of the confusion rose the kingdom of VIJAYANAGAR, which from its capital at Hampi in Bellary District for the next two centuries and a half checked the southward expansion of Muhammadan power.

The rise of this dynasty was dramatically rapid. The several Hindu chieftains everywhere admitted its sovereignty, the more willingly in that the only alternative was a despotism of Musalmāns; and from chiefs its rulers quickly grew into kings, and from kings into emperors. Within a century and a half from the foundation of the capital at Vijayanagar, they governed the whole of the peninsula from the Kistna to Cape Comorin. The empire reached the height of its power under Krishna Deva (1509–30), the greatest of its monarchs, contemporary with Henry VIII of England.

The chief opponents of Vijayanagar had been the Sultāns of the Bahmani dynasty, founded in 1347 by a rebellious subordinate of Delhi, whose capital was at Gulbarga in what is now the Nizām's Dominions. This line crumbled to pieces at the end of the fifteenth century and was followed by five separate Musalmān kingdoms. For many years the mutual jealousies and animosities of these rendered it easy for the Vijayanagar kings to play off one of them against the other; but at length they combined, and in 1565 at the great battle of Tālikotā, the third historical landmark, they utterly defeated the Hindu forces and followed up their victory by razing the city of Vijayanagar to the ground and forcing its king to flee. The empire never recovered from the blow. One by one its local governors threw off their allegiance and established themselves as independent rulers; and Southern India passed through a second period of anarchy, during which all local power fell in many places into the hands of small chieftains called *naiks* or *poligārs*, who usually harassed their subjects mercilessly.

The only governors of the fallen empire who established themselves in any permanency were the Naiks of Madura, and the suzerainty of the rest of the country fell gradually into the hands of the Sultāns of Bijāpur and Golconda. The former marched upon the country directly south of the Tungabhadra river and the latter took a line farther to the eastward. By the middle of the seventeenth century the Bijāpur Sultāns had possessed themselves

of most of the CARNATIC which lay above the Ghāts and of much territory below.

It was under this dynasty that the Marāthās first came into prominence. Serving first as military vassals, they eventually, in 1646, revolted openly against them and under the famous Sivajī established their independence.

In 1686 Aurangzeb, the Mughal emperor of Delhi, marched south to reduce Bijāpur and Golconda, and to crush the growing power of the Marāthās. He took Bijāpur in that year and Golconda in the next, and the territories which had been won by these two kingdoms from the Hindus thus became a portion of the Mughal empire. But with the Marāthās he was less successful. He seized Sivajī's son, Sambhājī, and put him to death in 1689; but the power of the race increased rather than declined, and they levied tribute throughout the Deccan and in other parts of the South as well, and do not disappear from Madras history until the beginning of the nineteenth century.

In 1724 Asaf Jāh, the viceroy whom the Mughal emperor had appointed to govern his conquests in the South and who bore the title of Nizām-ul-mulk, threw off all real allegiance to his suzerain and made himself virtually independent. He and his successors are known in history as the Nizāms or Sūbahdārs of the Deccan; and their chief subordinate in the South was the Nawāb of the Carnatic, otherwise called the Nawāb of Arcot.

Meanwhile the Hindu kingdom of Mysore, which had arisen from small beginnings on the ruins of the Vijayanagar empire, had become more and more powerful, owing largely to the exploits of a soldier of fortune in its army named Haidar Alī. By methods which were none too scrupulous, he rapidly gained supreme authority in the kingdom, and in 1761 he usurped its throne and began with more energy than ever to extend its possessions.

In the middle of the eighteenth century, therefore, the native powers in the South which had to be reckoned with were the Musalmāns under the Nizām, Mysore under Haidar Alī, and the Marāthās. Meanwhile, however, various European powers had begun to establish a footing within its limits.

The Portuguese were the first nation to form a settlement here. By the beginning of the sixteenth century they had occupied Calicut and Goa on the west coast. Vasco da Gama, the pioneer of maritime adventure, had visited that part of the country as early as 1498. For a century they prospered; but they were feebly supported at home after the union of Portugal with Spain, and eventually fell before the progress of the Dutch.

From the beginning of the seventeenth century the Dutch, who had

long been powerful in the Eastern Archipelago, settled at Pulicat, Sadras, and other places along the east and west coasts. They rapidly ousted the Portuguese; but their ideas were commercial rather than imperial, the remoteness of their head-quarters at Batavia hampered them, and they soon dropped out of the race.

Another European nation attracted by the wealth of the East was the French. Their original settlement had been in Madagascar. This they abandoned in 1672 in favour of Mauritius and Bourbon. Later they came on to India; and in 1674 François Martin founded and fortified the town of PONDICHERRY, which has since been the French head-quarters in the peninsula. In 1741 the famous Dupleix succeeded to the governorship of the place, and rendered it the one European settlement in the South which was capable of offering any real resistance to the English East India Company.

The earliest settlements of the English within the Presidency were at Nizāmpatam and Masulipatam, at which places Captain Hippon of the ship *Globe* landed in 1611 and founded factories. Five years later, settlements were planted on the west coast at Crānganūr and Calicut by the permission of the Zamorin. In 1619 another settlement was effected at Pulicat, but the jealousies of the Dutch compelled its abandonment. In 1625, two years after the massacre of the English by the Dutch at Amboyna, the Company's agents at Bantam in Java dispatched a vessel to Armagon in the present Nellore District and set up a small trading establishment there.

In 1639, owing partly to the annoyances caused to the Company's officers at Masulipatam by the subordinates of the Sultān of Golconda, within whose territories that place lay, and partly to the desire to possess a factory nearer to the real centres of the weaving and dyeing industries of the country, Francis Day, the chief official at Armagon, sought for and obtained through a subordinate of the last representative of the old Vijayanagar dynasty, who was then living at Chandragiri in North Arcot, the grant of the land on which Fort St. George now stands. A small fort was at once erected, and two years later the place became the Company's head-quarters on the Coromandel coast. In 1653 Fort St. George was raised to the rank of a Presidency, independent of Bantam, and in 1658 the factories in Bengal were placed under its orders. In 1690 the Company purchased from the Marāthās the land on which FORT ST. DAVID, near Cuddalore, stands; and at the end of the seventeenth century there were also English factories within the present limits of the Madras Presidency at Porto Novo, Madapollam, Vizagapatam, Anjengo, Tellicherry, and Calicut.

Up to 1740 the Company's agents had managed to keep themselves clear of the wars between the various native governments which were

going on around them, and free from serious trouble with the other Europeans who had settlements in the South. But in 1741 the War of the Austrian Succession lit the first flame of a conflict between them and the French, which lasted until the capture of Pondicherry in 1761, followed by the Peace of Paris in 1763.

The first notable event in this contest was the capture of Madras by La Bourdonnais in 1746. Under the orders of Dupleix, who was then in command of the French possessions, the Governor and the chief merchants were taken prisoners to Pondicherry. Fort St. David then became for a time the Company's head-quarters in the South. Madras was, however, restored to the English under the Treaty of Aix-la-Chapelle in 1749, and the Company set themselves vigorously to work to render it more defensible than it had been at the time of the French attack.

Peace being declared between the two nations, the forces which each of them had collected in the South engaged on opposite sides in the struggles between the native powers. Each espoused the cause of a different claimant for the Nawābship of the Carnatic, and each supported its own candidate for the office of Nizām of the Deccan. The stirring details of the severe conflicts which ensued fill many pages in the histories of the period, and concern themselves with the exploits of many Englishmen—Clive and Stringer Lawrence among the number—whose names will ever be famous.

In 1757 news reached India that war had again broken out in Europe between England and France, and the forces of the two nations in the South were once more at each other's throats. The advantage at first lay with the French. They captured successively the English forts at Vizagapatam, Fort St. David, and Devikottai (which last had been granted to the Company by the Marāthās of Tanjore), and in 1758 they besieged Madras. Here, however, they were unsuccessful and eventually withdrew; and meanwhile Colonel Forde, who had been dispatched by Clive from Bengal to the Northern Circārs, had signally defeated them at Condore and captured Masulipatam. This victory resulted in the cession to the Company of a considerable tract round about the latter town, which led eventually, after many vicissitudes, to the whole of the NORTHERN CIRCĀRS being granted to the British by the Mughal emperor in 1765. Farther south the struggle culminated in the battle of WANDIWĀSH, in which Eyre Coote utterly routed the French under Lally. Gingee, Arcot, and other minor French strongholds fell in quick succession; and in May, 1760, the English were in a position to attack Pondicherry itself. Lally called in the help of Haidar Alī of Mysore, but events in his own territory prevented the latter from taking any important part in the contest. Pondicherry surrendered in January, 1761. With the

other French possessions, it was restored by the Peace of Paris in 1763; but the power of the French in Southern India was never again formidable, and it was thus in the Madras Presidency that the question was decided which of the European nations should be supreme in India.

We have now reached the middle of the eighteenth century, when, as has been said, the native powers which had to be reckoned with were the Musalmāns under the Nizām of the Deccan and the Nawāb of the Carnatic, Mysore under Haidar Alī, and the Marāthās. The only European force of any consequence was that of the English, and between these four the struggle for the possession of the peninsula now lay. The Nizām and the Marāthās invited the English to assist them in clipping the wings of Haidar, who was encroaching upon their territories. Haidar, however, bought off both Musalmāns and Marāthās, and then made a descent upon the English possessions in the Carnatic. Fighting followed on both coasts of the peninsula; but the operations were indecisive, and peace was eventually concluded in 1769 by a treaty based on a mutual restitution of conquests.

In 1780 broke out the next war with Haidar, who was again befriended by both the Musalmāns and the Marāthās. He descended upon the plains of the Carnatic in July of that year, burning crops and devastating villages, so that a cordon of blackened desert was formed all round the city of Madras, from Pulicat on the north to Pondicherry on the south and extending 50 miles inland.

Warren Hastings, then Governor-General of Bengal, dispatched Sir Eyre Coote to Madras with reinforcements. His ability soon caused the tide of fortune to turn; but age had sapped his former energy, and it was not until after three years of severe fighting in every part of the peninsula that peace was at length made in 1784. As before, the basis of the treaty was a mutual restoration of conquests. Haidar Alī had died during the operations, in 1782, and was succeeded by his son, Tipū Sultān, a man in every way his inferior.

Six years later war once more ensued with Mysore, Tipū having provoked hostilities by raiding the Native State of Travancore, which was in alliance with the British. Lord Cornwallis, the Governor-General, commanded the forces in the field in person, and this time the British were assisted by the Nizām and the Marāthās. After two years' fighting, Seringapatam, the Mysore capital, was besieged; and thereupon Tipū, in 1792, agreed to cede to the allies one-half of his territories, and to pay an indemnity of 3 crores and 30 lakhs of rupees. The British share of the territory thus ceded included the country round Dindigul and the Districts of Salem and Malabar.

Tipū then began intrigues to draw to his own side the allies of the British, and even sent an embassy to Mauritius to invoke the aid of

the French. Lord Mornington, now Governor-General, realized the danger to British supremacy in India which such action involved, and came south to deal with the situation. The Nizām again sent a contingent to join the British. Tipū, after a feeble resistance in the field, retired to Seringapatam. The fortress was stormed on May 4, 1799, and Tipū's body was found among the slain. A representative of the Hindu dynasty, whose rights had been usurped by Haidar in 1761, was placed upon the throne of Mysore proper, and the rest of Tipū's territories were divided between the allies. The share of the British included Kanara, Coimbatore, and the Wynaad.

In this same year, 1799, the Marāthā Rājā of the principality of Tanjore, in return for aid received in gaining the throne, executed a treaty resigning the administration of his kingdom to the Company in consideration of an annual payment. In 1800 the Nizām ceded to the Company, in return for a subsidiary force to be established in his dominions, all the territories he had acquired from Mysore at the partitions of 1792 and 1799. These tracts included the present Districts of Bellary, Anantapur, Cuddapah, and part of Kurnool, which are still known as the 'Ceded Districts.' When Seringapatam fell in 1799 a treasonable correspondence had been discovered between Tipū and the Nawāb of the Carnatic, who was nominally the ally of the Company. In consequence, after many negotiations, a treaty was concluded with the Nawāb in 1801, under which he resigned the government of his country to the Company, but retained the titular dignity and received a considerable stipend. The existing representative of the family bears the title of Prince of Arcot and has the position of the first native nobleman of Madras.

The Company had thus obtained possession of the whole of the present Madras Presidency from Cape Comorin to the Northern Circārs, except part of Kurnool District, the Danish settlement of Tranquebar, the existing French settlements at Pondicherry and other places, and the territories of the five Native States still in subordination to the Madras Government, the history of which will be found in the separate articles regarding them.

In 1839 internal mismanagement and treasonable intrigue on the part of the Nawāb of Kurnool led to the annexation of his country. Tranquebar was purchased from the Danes in 1845. In 1862 the District of North Kanara was transferred to Bombay. Since then no alterations of importance in the limits of the Presidency have occurred.

The territories thus rapidly acquired at the end of the eighteenth and beginning of the nineteenth centuries were in most cases reduced to order with little trouble. The *poligārs* in the Ceded Districts had to be suppressed by an armed force, and the turbulence of those in

the extreme south necessitated more than one regular campaign. In the Northern Circārs the hill chiefs gave trouble as late as 1836. The last occasion on which the employment of regular troops has been necessary was the rebellion in the RAMPA hill-tracts of the Godāvari Agency in 1879.

After the palaeolithic and neolithic implements which have been discovered in scattered sites, the oldest objects of archaeological interest in the Presidency are the prehistoric barrows, cairns, kistvaens, and dolmens found in almost all Districts, the first three of which frequently contain pottery, ashes, arms, implements, personal ornaments, &c. The chief remains of historic times consist (besides coins) of inscriptions, temples, and forts. During the last twenty years much has been done to survey, describe, and preserve these links with the past. In 1882 the first list of antiquities in the Presidency was published, and about the same time an Archaeological Survey in charge of a specialist was set on foot, while a few years later a Government Epigraphist was appointed. These two officers make annual reports of the results of their work, and also publish the more important of their discoveries in the Imperial Series of *Reports of the Archaeological Survey of India*, and in *South Indian Inscriptions*, the *Epigraphia Indica*, and elsewhere. The Epigraphist is systematically translating and publishing the countless inscriptions on the thousands of temples in the Presidency, and his work is doing much to illuminate the existing darkness of its early history. The Archaeological Survey embraces both prehistoric and historic remains. Such prehistoric antiquities as the Madras Museum contains, including the well-known collection made in the Nīlgiris by Mr. Breeks, have been catalogued and described by Mr. Bruce Foote; and lately some extensive burial-places have been discovered at ADICHANALLŪR in Tinnevelly, the extraordinary variety and richness of the finds made in which are referred to in the notice of that place.

The remains belonging to historic times are chiefly specimens of religious architecture and sculpture. The more important examples are specially conserved by Government. The oldest of them are the Buddhist antiquities, found mainly in the valley of the Kistna, the most remarkable of which is the *stūpa* at AMARĀVATI. A number of mounds believed to contain Buddhist remains have been protected from molestation by order of Government, pending an opportunity for their examination by experts. Next in age come the Pallava caves and structures, of which the most famous are those at the SEVEN PAGODAS in Chingleput. Jain antiquities are frequent in South Kanara, the temples at MŪDBIDRI and the colossal statues at KĀRKALA and YENŪR being the best known. The Muhammadan architecture in the Presidency is of little interest. Of Hindu styles, the Chālukyan and Orissan

are occasionally found, the former chiefly in Bellary and the latter in Ganjām; but the prevailing style is Dravidian. The golden age of this was the sixteenth and seventeenth centuries, during which the best portions of the famous temples at Madura, Rāmeswaram, Tanjore, Conjeeveram, Srīrangam, Chidambaram, Tiruvannāmalai, Vellore, and Vijayanagar were constructed. These buildings impress the imagination rather by the immense labour which has been devoted to the elaboration of the ornament in most untractable materials—monolithic groups of figures wrought in complete relief and with the highest finish in the hardest granite being common—than by the general effect of their component parts. Too often they seem to have been erected on no set plan, and frequently the outer courts are more striking than the inner shrines, though an inversion of these conditions would have produced a greater impression. Characteristic points of the Dravidian style are its bracketed capitals, cornices with double flexure, flat ceilings—the arch being never employed—and the tall, tapering towers which crown the entrances through the walls surrounding courts. Noteworthy examples of military architecture are the forts at Gingee, Vellore, Trichinopoly, Dindigul, and Gooty. The Archaeological Survey embraces the preparation of systematic descriptions, drawings, and photographs of the more notable of all these different classes of antiquities.

Population.

Table I at the end of this article (p. 350) gives the principal results of the Census of 1901. The population in British territory at the last four enumerations has been: (1871) 31,220,973, (1881) 30,827,218, (1891) 35,630,440, and (1901) 38,209,436. The decline of 1·5 per cent. in 1881 was due to the famine of 1876–8, but in the succeeding decade a rebound occurred after this visitation and the rate of increase (15·7 per cent.) was abnormal. The largest and most populous District, Vizagapatam, has an area of 17,200 square miles and 2,900,000 inhabitants. Excluding the exceptional cases of Madras City and the Nīlgiris, the average area of a District is 7,036 square miles, or rather less than that of Wales, and the average number of inhabitants is 1,879,000, or considerably more than that of the Principality. The density of population in the rural areas is twice as great as that of Scotland and equal to that of Germany. It is highest in the natural division of the West Coast (368 persons per square mile), and lowest in the Agencies (69). Excluding the little State of Cochin, Tanjore District (605) is the most thickly-populated area. In rich Malabar there are 100 more people to every square mile than there were thirty years ago, but in the infertile Deccan the population has remained practically stationary. During the decade ending 1901, the inhabitants of Kistna increased faster (16 per cent.) than those of any other District, while in Tanjore,

which is already crowded and whence considerable emigration takes place, the advance was less than 1 per cent.

The people of the Presidency are mainly agricultural, and live in villages which have an average of 600 inhabitants each. Except on the West Coast, where most of the houses stand in their own fenced gardens, these are usually compact collections of buildings. In the Deccan they still retain traces of the fortifications which were necessary in the troublous days preceding British occupation. About 11 per cent. of the people live in towns. Only three cities in the Presidency—Madras, Madura, and Trichinopoly—contain over 100,000 inhabitants, and only eight others over 50,000. There seems, however, to be clear evidence that, owing to a variety of reasons, a marked movement of the people into towns is gradually taking place.

Between District and District the migration is usually infinitesimal. Madras City attracts labour from the adjoining areas, and the rapidly developing deltas of the Godāvari and Kistna are being peopled to some extent by immigrants from the neighbouring country; but of the population as a whole about 96 per cent. were born in the District in which they were found on the night of the 1901 Census, and another 3 per cent. were born in the Districts immediately adjoining them. Emigration to other countries is, however, rapidly increasing; and in 1901 Burma contained 190,000 persons who had been born in Madras, Mysore State contained 237,000, and Ceylon 430,000. Large numbers also go to the Straits Settlements and Natal. Many of these emigrants eventually return with their savings to their native villages, and this movement therefore does less than might be expected to relieve the pressure of the population on the soil.

The ages returned (especially by women) have always been exceedingly inaccurate, as birthdays are not marked in India in the same way as in England, and few persons trouble to remember, even approximately, how old they are. A very large proportion return their ages as being one of the multiples of five—20, 25, 30, 35, and so on. Exact deductions from the figures are thus seldom possible. The figures of the 1901 Census still show traces of the great famine of 1876–8, twenty-five years previous, the number of persons between the ages of twenty and twenty-five being much smaller in the Districts which suffered severely from that visitation than in those which escaped it.

The registration of births and deaths is by law compulsory in all municipalities and in a few of the larger villages to which Act III (Madras) of 1899 has been extended. Elsewhere no penalty is enforceable for omission to register these occurrences; and though much attention is given to the matter by the Revenue department, it cannot be claimed that the returns are yet complete or reliable, and

a high death-rate in a District may be due less to its unhealthiness than to accuracy of registration. In the Agencies of Ganjām and Vizagapatam, in certain *zamīndāri* areas in the former District and in Madura, and in the Laccadive Islands registration of vital statistics has not yet been attempted. In the municipalities the municipal staff is held responsible that the law is obeyed. In rural areas the village accountants are required to keep the returns; their work is checked by the staff of the Revenue and Sanitary departments, and the results are compiled and criticized by the District Medical and Sanitary officers and by the Sanitary Commissioner.

Though the returns are not accurate, the causes of error in any given area are fairly constant, and it is thus possible to make use of the figures in computing the effects of adverse seasons in the different Districts. When combined with the age statistics of the Census, they show that severe famines, such as that of 1876–8, tell most upon the very young and the very old, and upon males more than upon females, and that their effects are not confined to the deaths directly caused by privation, but are clearly traceable in a marked decrease in the birth-rate due to the weakening of the reproductive powers. They also show that the rate of infant mortality is extremely high, and that both sexes are considerably shorter lived than in European countries.

The subjoined table gives the birth- and death-rates (as registered) in the Presidency as a whole in recent years, and the mortality per 1,000 from certain diseases:—

Year.	Population under registration.	Ratio per 1,000 of registered		Deaths per 1,000 from			
		Births.	Deaths.	Cholera.	Small-pox.	Fever.	Bowel complaints.
1881 . .	28,676,375	25.5	16.2	0.3	0.5	7.1	0.6
1891 . .	28,513,734	32.4	26.2	3.5	1.4	8.6	1.2
1901 . .	37,315,611	25.1	21.3	2.2	0.7	7.9	1.1
1903 . .	37,355,766	31.0	22.0	0.7	0.4	8.4	1.3

It will be seen that the deaths caused by cholera and small-pox were comparatively few; and credit for this is due to the Sanitary and Vaccination departments, which, by introducing drainage and water-supply schemes in municipalities, by improving the sanitary methods of the smaller towns, and by adding steadily year by year to the total number who are protected by vaccination, have done much to abate the virulence of two diseases which were once the scourge of the people. The deaths returned as due to fever include many of which the real causes have not been properly diagnosed. The seasonal fever

which occasions such heavy mortality in Northern India is hardly known in the South. Plague has not as yet succeeded in gaining the same foothold in Madras as in other Provinces. It has been worst in the Districts of Anantapur, Bellary, North Arcot, and Salem, all of which adjoin Mysore territory, where it has been very prevalent. The methods of combating plague have consisted chiefly in the temporary evacuation of infected villages and the thorough disinfection of the buildings within them. The people are at length beginning to realize the advantages of these measures.

In 1901 there were 545,000 more females than males in the Presidency, or 1,029 of the former to every 1,000 of the latter; but in seven Districts—Kistna, Nellore, Cuddapah, Kurnool, Bellary, Anantapur, and Chingleput—which form a compact block of country in the centre, there always exists a preponderance of males which has never been satisfactorily explained. It cannot, for several reasons, be entirely due to the omission of women at the enumerations, nor to the migration to this area of large numbers of men. It is noticeable that in the large towns generally the proportion of women is lower than in rural areas, the reason being that the labour market of these places attracts the able-bodied men of the surrounding country.

As in other parts of India, the three distinctive features of the statistics of marriage in Madras are its universality, the early age at which it takes place, and the high proportion which the number of widows bears to that of widowers. As is well-known, every Hindu desires a son to light his funeral pyre when he dies; early marriage is encouraged by the example of the Brāhmans, and by the difficulty of procuring brides and bridegrooms which the numerous prohibited degrees of marriage involve; and the practice of the upper classes in the matter has caused it to be considered irregular for a widow to remarry. Consequently, while in England and Wales, according to recent figures, 41 per cent. of the males and 39 per cent. of the females over the age of 15 are unmarried, in Madras in 1901 the corresponding figures were only 25 and 15. In the former country not one male or female in 10,000 under the age of 15 is married or widowed, while in this Presidency 1 per cent. of the boys and 9 per cent. of the girls under this age had entered into the bonds of matrimony; and while in England and Wales there are 231 widows to every 100 widowers, in Madras there were 506. Among Musalmāns and Christians, however, these three distinctive features are much less pronounced than among Hindus, neither adult marriage nor widow remarriage being discouraged by their faiths; and moreover a perceptible improvement in the degree to which all three of them prevail among Hindus, and even among Brāhmans, is at length visible in the 1901 census figures.

The statistics of civil condition at the last two enumerations are appended:—

Civil condition.	1891.			1901.		
	Persons.	Males.	Females.	Persons.	Males.	Females.
Unmarried	16,191,875	9,488,413	6,703,462	17,953,437	10,408,471	7,544,966
Married .	15,370,166	7,519,174	7,850,992	15,829,992	7,702,871	8,127,121
Widowed .	4,053,642	604,791	3,448,851	4,426,007	729,942	3,696,065
Not stated.	14,757	7,017	7,740	...	...	...

Owing, probably, to the former prevalence of polyandry, inheritance on the West Coast is usually through the mother. Polyandry, though now extremely rare, survives there still, and also among two or three Hindu castes elsewhere. Polygamy is permitted to both Hindus and Musalmāns, but financial reasons restrict its practice. Divorce is freely allowed among Musalmāns, but with Hindus is customary only in the lower castes.

The most noticeable point about the languages of the people is the preponderance of those which belong to the Dravidian family. Over 91 per cent. of the population speak vernaculars of this family, while in India as a whole the percentage is only 20. The statistics of the last two census years are given below:—

Languages spoken.	1891.	1901.
Tamil	14,076,989	15,182,957
Telugu	13,653,674	14,276,509
Malayālam	2,688,332	2,861,297
Kanarese	1,445,650	1,518,579
Oriyā	1,292,163	1,809,314
Hindustāni	817,146	880,145
Others	1,656,486	1,680,635

The first four languages shown are Dravidian. Tamil is the tongue of the southern Districts of the east coast, Telugu that of the northern, Malayālam that of the west coast District of Malabar, while Kanarese is spoken in the upland regions bordering on Mysore, and is also the official language in South Kanara. Oriyā is almost confined to the two northernmost Districts of Ganjām and Vizagapatam, and Hindustāni is the vernacular of the Musalmāns of purer extraction. Marāthī and its dialect Konkanī are spoken by the considerable colonies of Marāthās whom the various invasions of that race have planted in the Presidency (those in Bellary and Tanjore are instances), or who have overflowed into South Kanara District from Bombay. These seven languages are the only ones which have a written character and (except Konkanī) a literature of their own, though some of the others borrow characters

for use in writing. Their written idiom generally differs very greatly from that used in the everyday speech of the masses.

In the hill and forest tracts are found several languages which survive in consequence of the geographical isolation of those who speak them. In the Agencies of the three northern Districts, Khond, Savara, Gadaba, Koya, and Gondī are spoken by the tribes from which they take their names; on the Nīlgiri plateau the Todas, Kotas, and Badagas each speak a language which is not found elsewhere; the dialects of Kurumba, Kasuba, and Irula are used by sections of certain castes which still live in the hills, though their brethren in the low country have dropped them in favour of the better known tongues; and the foreign gipsy race of the Kuravans or Yerukalas, like gipsies elsewhere, cling to their own patois wherever they roam.

The result of all this is an extraordinary diversity of tongues. In only seven Districts of Madras do as many as 90 per cent. of the people speak the same language, while in as many as four not even 50 per cent. of them speak the same language. In South Kanara five different vernaculars—Tulu, Malayālam, Kanarese, Konkanī, and Marāthī—are spoken by at least 2 per cent. of the population; in the Vizagapatam Agency six: namely, Oriyā, Khond, Telugu, Savara, Poroja, and Gadaba; and in the Nīlgiris eight: namely, Tamil, Badaga, Kanarese, Malayālam, Telugu, Hindustāni, English, and Kurumba.

The exigencies of space preclude any but the most general reference to the very many castes, tribes, and races of the Presidency. The 1901 *Census Report* distinguished 450 communities of all degrees of civilization and enlightenment, from the Brāhmans, the heirs to systems of religion and philosophy which were already old when the Romans invaded Britain, down to the Khonds of the Agency tracts, who within recent memory practised human sacrifice to secure plentiful harvests. The great majority are of Dravidian stock, and have the medium stature, the unusually dark (almost black) skin, the curly (not woolly) hair, the high nasal index, and the dolichocephalic type of skull which distinguish that race. In the Kanarese country, however, brachycephalic heads are common. A systematic Ethnographic Survey of the Presidency is now in progress.

Of the Hindu castes of Madras the five largest are the Kāpus (2,576,000 in 1901), the Pallis (2,554,000), the Vellālas (2,379,000), the Paraiyans (2,153,000), and the Mālas (1,405,000). The traditional occupation of all these (though the Pallis are less conservative than the other four) is agriculture, the Kāpus and Vellālas being cultivators of their own land, while the others are farm-labourers. Next in numerical strength come the Brāhmans (1,199,000), whose traditional calling is that of priest and teacher. Proportionately to the Hindu and Animist population generally, Brāhmans are most numerous in

the Districts of South Kanara, Ganjām, and Tanjore, and least so (only 15 in every 1,000) in the Nīlgiris and the three Agency tracts.

But these large communities are by no means homogeneous throughout. They are divided and subdivided into endless sub-castes, which keep severely apart from one another and usually decline to intermarry or even to eat together. Nor is it the case that they all adhere to their traditional occupations. Census statistics show that one-fourth of the Paraiyans and 12 per cent. of the Mālas have so far risen in the world as to become occupiers and even owners of land, instead of continuing to be predial serfs, while of the Brāhmans 60 per cent. have left their traditional callings for agriculture, and others have even taken to trade.

These facts are not, however, an indication that the bonds of caste are weakening. In the all-essential matter of marriage their influence is perhaps becoming stronger, and the limits within his sub-caste outside which a Hindu may not take a bride are narrowing rather than expanding. A sign of the many disabilities which caste restrictions still impose is the energy with which a number of Hindu communities are endeavouring to improve their position in the scale accorded to them by their co-religionists. The Brāhmans are the acknowledged heads of Hindu society, and their social customs are therefore considered to be the most correct. A caste, or a subdivision of a caste, which desires to improve its position, will frequently, therefore, imitate Brāhman ways as far as it dares, quitting callings considered degrading, taking to vegetarianism, infant marriage, and the prohibition of widow remarriage, inviting Brāhmans of the less scrupulous kinds to officiate at its domestic ceremonies and remodel them in partial accordance with Brāhmanical forms and ritual, and changing its name for one with less humiliating associations. Pretensions of this kind are seldom, however, meekly admitted by the superiors or equals of the aspiring community, or even by their inferiors. The most notable recent protest against such innovations was the Tinnevelly disturbance of 1899, occasioned by the Maravans' refusal to admit the claims of the Shānāns (who by tradition are toddy-drawers and so are supposed to carry pollution) to be Kshattriyas and to enter Hindu temples. Revolts against the traditional decrees of caste are, however, more often silent and gradual than open and avowed. The usual course of events is for a few families of a sub-caste who have risen in the world to hold aloof gradually from their former equals, to adopt some of the Brāhmanical usages, and to look higher than before among the other subdivisions of the caste for brides for their sons and husbands for their daughters. In this way new sub-castes, and even new castes, are constantly originating.

The Musalmāns of Madras are of three main classes—firstly, immi-

grants from outside, or their descendants; secondly, the offspring of these by Hindu women of the country; and thirdly, natives of the country who have gone over to Islām. It is not, however, possible to give the relative strength of these groups, as members of the last two of them frequently call themselves by the tribal names which in strictness belong only to the first. The Māppillas and Labbais, however, who are admittedly outside the first group, number 907,000 and 407,000 respectively, while the three most numerous tribes included within the first group—Shaikhs, Saiyids, and Pathāns—number 787,000, 152,000, and 95,000. The religious and social observances of the mixed races partake largely of the forms current among Hindus, and even those of the purer stock are tinged by Hindu influences.

Of every 100 people in the Presidency, 89 are Hindus, 6 are Musalmāns, 3 are Christians, and 2 are Animists: that is, worshippers of souls and spirits not included among the gods of the Hindu pantheon. Jains number only 27,000, most of them being found in South Kanara and North and South Arcot; Pārsīs, 350; and Buddhists, 240. The numbers of the followers of the chief religions according to the last two enumerations are given below:—

Religion.	1891.	1901.
Hindus	31,998,245	34,048,091
Animists	472,808	641,730
Musalmāns	2,250,386	2,467,351
Christians	865,528	1,024,071
Others	43,473	28,193

Hindus preponderate enormously. If Animists be included with them (and the line of differentiation between the two is ill defined), they constitute 80 per cent. of the population of every District except Malabar, and as much as 97 per cent. in the three northern Districts of Ganjām, Vizagapatam, and Godāvari. Their preponderance is, however, slowly declining, as they continue to increase less rapidly than either the Musalmāns—who are apparently more prolific and certainly more given to proselytizing—or the Christians. By sect, most of them are followers of Vishnu or Siva, the former predominating in the Telugu country and the latter in the extreme South. In the Western Deccan a large number belong to the sect of Lingāyats, the members of which reverence Siva and his symbol the *lingam*, reject the claims of Brāhmans to religious supremacy, and affect to disregard all distinctions of caste.

Musalmāns are proportionately most numerous in Malabar and in the Deccan. The former District contains more than one-third of the whole number of this faith in the Presidency, the majority being of the race of Māppillas, whose fanatical outbreaks have given them an

unenviable notoriety. Nearly all the Musalmāns of Madras are Sunnis by sect. The few notable mosques which they have erected are adaptations, tinged with Hindu influence, of the styles prevalent in Northern India.

The rapid advance in the numbers of the native Christian population has been a marked feature in recent years. Since 1871 they have increased by 99 per cent., compared with an advance in the population as a whole of 22 per cent.: that is, they have multiplied between four and five times as fast as the people generally. Most of the converts are drawn from the lowest classes of society; but they have made excellent use of the opportunities placed before them, and by their educational superiority and their manner of life are earning for themselves a constantly improving position. Native Christians are proportionately most numerous in Tinnevelly and South Kanara. The total Christian population of Madras now numbers over a million, of whom only 14,000 are Europeans and 26,000 Eurasians. Of this total, 62 per cent. belong to the Church of Rome, 14 per cent. to the Anglican communion, and 12 per cent. are Baptists. The only other sects largely represented are Lutherans and Congregationalists.

The Presidency includes three Protestant Bishoprics, those of Madras, Madura and Tinnevelly, and Travancore and Cochin, while the Roman Catholic Church is represented by an Archbishop and three Bishops, those of Mylapore, Vizagapatam, and Cochin, besides missionary bishops. The Syrian Church on the West Coast has a separate organization.

A history of the Christian missions in Southern India would fill many pages. Excluding the legendary visit of St. Thomas the Apostle, the earliest mission was that of the Portuguese Franciscans to the West Coast in 1500. The Jesuits began their labours in 1542, their first missionary being St. Francis Xavier, who worked in Tinnevelly and was buried at Goa in 1553. In 1606 Robert de Nobili founded the famous Madura Mission, to which also belonged De Britto (martyred in 1693) and Beschi, the great Tamil scholar. The Society of Jesus was suppressed in 1773 and not re-established till 1814, and during those years the missions languished. Persecution was also common, Tipū Sultān, for example, forcibly circumcising 30,000 of the West Coast Christians and deporting them to Mysore. At the present time contributions are received from all parts of Europe for the support of the Catholic missions, and they are controlled directly by the Pope through missionary bishops delegated by him.

Of Protestant missions, the first was the Danish Mission at Tranquebar, which was established by Ziegenbalg in 1705. Swartz and Rhenius both belonged to this. It was much helped in its early days by the English Societies for the Promotion of Christian Knowledge and for

the Propagation of the Gospel. The former sent out its first missionary in 1728. The London Missionary Society followed in 1804, and the Church Missionary Society ten years later. The Wesleyan Missionary Society began operations in 1818, and the American Madura Mission and the Basel Evangelical Mission in 1834. The latter has several branches on the West Coast, at which its adherents are occupied in the industries of printing, weaving, and tile-making under lay helpers. Later missions are the Baptist Telugu, the Free Church of Scotland, the Leipzig and the American Evangelical Lutheran Missions, the Arcot Mission of the Reformed Church in America, and the Canadian Baptist Mission.

The most noticeable point about the census statistics of the occupations of the people is the rural simplicity of the callings by which the large majority of them subsist, and the rarity of industrial occupations other than weaving. No less than 69 per cent. of the population live by the land. Of these, more than 95 per cent. are cultivators, tilling land which they either own or rent from others. Of these cultivators, 72 per cent. farm land which is their own property, or, in other words, are peasant proprietors. Next to agriculture, but after a very long interval, the commonest occupations are those connected with the preparation and sale of food and drink, which support 7 per cent. of the population, and those relating to textile fabrics and dress, which include all the weavers and employ 4 per cent. of the people. The various Districts differ little among themselves in the occupations which their inhabitants follow. The three Agency tracts and South Arcot are the most essentially agricultural areas; but, excluding the exceptional cases of Madras City and the Nīlgiris, the percentage of the population which lives by the land is fairly uniform, ranging from 62 to 75. Even in those Districts where this percentage is low, it is kept down merely by the unusual number of those who subsist by such callings as weaving, toddy-drawing, fishing, and so on, and not by the occupation of any considerable proportion of the people in employment which is strictly speaking industrial. In the larger towns agriculture is naturally not the main occupation. The provision and sale of food, drink, and dress take the lead; and next come money-lending, general trade, and callings connected with the transport and storage of merchandise. Even in towns, however, industrial occupations proper fail to employ any large proportion of the people.

Musalmāns and the lower classes of Hindus eat meat, except that the former will not touch pork and that only the lowest castes of the latter will eat beef. The upper classes of Hindus are strict vegetarians, avoiding even fish and eggs. Alcohol is forbidden to Muhammadans and the higher castes of Hindus. Rice is the staple food of the richer classes, and *rāgi*, *cambu*, and *cholam* the usual diet of the others.

Pulses of various kinds are combined with all of these, and flavouring is obtained by the addition of sundry vegetables and a number of (often pungent) condiments. Nearly all classes chew betel.

The dress of the people varies with their religion and caste, and moreover differs in different localities. Speaking very generally, that of the Hindus consists of a waist-cloth and a turban. Well-to-do persons add a cloth over the shoulders. The educated classes have taken to coats, and sometimes trousers and even boots, but never use a hat in place of a turban. Musalmāns wear trousers and jackets, and a turban wound round a skull-cap or fez. Hindu women usually dress in one very long and broad piece of cotton or silk which, after being wound round the waist, is passed over one shoulder and tucked in behind. Under this is often a tight-fitting jacket with short sleeves. Musalmān women wear a petticoat and a loose jacket. Women never wear any head-dress, or anything on their feet.

Houses vary in degree from the one-roomed, mud-walled, thatched-roof hut of the labouring classes to the elaborate dwelling of the rich money-lender or landowner. The ordinary house contains a central court, surrounded by various rooms and opening by one door into the street. On the street side is usually a veranda, which is not considered to be part of the house and so can be used by strangers who would pollute the dwelling if they penetrated farther. In the Deccan there is usually no court and no outer veranda, and the roofs are flat. The members of one family, even if married, frequently live together and hold all their property in common. The present tendency, however, is for these joint families to break up and live separately.

Musalmāns always bury their dead, and the same practice is usually followed by the lower castes of Hindus. The upper castes usually burn them, but high priests and other saintly persons are buried. In many communities curious exceptions are practised—lepers and pregnant women, for example, being buried.

Excepting English importations, games and amusements are few. Cock- and quail-fighting (though discouraged by the authorities) are popular in places, and cards, chess, and games of the 'fox and geese' type are common. Strolling players, jugglers, and acrobats tour periodically through the country. A few castes organize beats for large game on general holidays.

The religious festivals of the South are legion. Perhaps the most important of those which are not merely local or connected with some special temple are the Ayudha Pūjā ('worship of implements') in October, when every one does reverence to the tools and implements of his profession—the writer to his pen, the mason to his trowel, and so forth; the Dipāvali (literally, 'row of lights') in October or November; and the Pongal ('boiling') in January. At this last the first rice of the

new crop is boiled in new pots. The cattle share in the festival, being allowed a day's holiday and having their horns painted with divers colours.

The Madras Hindu of the better classes has usually three names, e. g. Madura Srīnivāsa Ayyangār, or Kota Rāmalingam Nāyudu. The first of these is either the name of the village or town to which he belongs, as Madura; a house-name (as Kota) adopted for a variety of reasons; or the name of the man's father. The second name is that by which he is usually addressed, and is often that of one of the gods; while the third is the title of the caste. Among Brāhmans, this third name further denotes the religious sect of its possessor, and sometimes even his nationality. Thus an 'Ayyangār' is a Vaishnavite, an 'Ayyar' a Saivite, and a 'Rao' a Marāthā Brāhman. The labouring classes and women have usually only one name.

Agriculture.

The agriculture[1] of the Presidency naturally depends largely upon its climate, soils, and seasons. Lying, except the Northern Circārs, between 8° and 16° N., the climate is hot and equable; the whole period from March to October is characterized by high temperature, coupled, in the central areas, with great atmospheric dryness. As has been mentioned above, the west coast enjoys a heavy and unfailing fall of 100 inches and upwards; the east coast shares, through the Bay current, in the south-west monsoon as regards the northern Districts, and obtains the full benefit of the north-east monsoon; the central and southern table-land, comprising ten of the largest Districts, gets, with exceptions, only a moderate and capricious rainfall, varying locally from 38 inches in North Arcot to 23 inches or less in Bellary. Much of this last area is known as the famine zone; over large tracts the amount received in 1876 was from 2·7 to 10 inches; during the decade ending 1900 the Deccan Districts received an annual average of only 23·2 inches. Moreover, where the rainfall is least abundant it is most capricious in both amount and distribution; there are frequently excessive and destructive intervals or premature cessations at critical seasons, while much of the rain is too light to be of use under a tropical sun or to put any water into the irrigation sources. The atmosphere in the Deccan and central Districts is extremely dry for most of the year, and dew is general only in the cold season.

To hostility of climate must be added considerable inferiority of

[1] In the remarks under this head, only the Districts east of the Western Ghāts will be included unless the West Coast is expressly mentioned. The two West Coast Districts (Malabar and South Kanara) are wholly different from the others. Statistics relate solely to *ryotwāri* and *ināṃ* land; the *zamīndāris* (population, 7,554,355, excluding those in the Agency tracts) are wholly omitted. For the meaning of the terms *ryotwāri*, *ināṃ*, and *zamīndāri* see under Land Revenue (pp. 317, 318).

soil. The deltas and river margins, indeed, are of rich alluvial mould robbed from the hills and uplands of the undulating country, and over large tracts is found the retentive black cotton soil; but, from their geological origin and position, the soils over vast areas are shallow, gravelly, and sandy, overlying a sterile and even impenetrable subsoil of gravel and rock. Much even of the black soil is inferior, being saline and shallow. Of 17·5 million acres of 'wet' and 'dry' land in twelve non-deltaic Districts, the black clays, loams, and sands aggregate 16, 17·4, and 4 per cent. respectively, and the red loams and sands 22·5 and 40·1 per cent.: in those Districts alluvial soils and red clays are of inappreciable extent. Soils are described as 'dry,' i. e. non-irrigated; 'wet,' i. e. irrigated otherwise than from private wells; and 'garden,' i. e. 'dry' land watered from private wells on which 'dry' and not 'wet' assessment is charged. Of the occupied *ryotwāri* area, 81 per cent. is 'dry,' including 'gardens,' and 19 per cent. 'wet.' 'Dry' soils, even of the black class, are deficient, generally speaking, in organic matter and in constituents of vital importance. Phosphoric acid is low in all soils, so far as tested; nitrogen is wanting and nitrifying power small; alumina is lacking in the vast areas of sandy soils; potash and iron are usually sufficient, but lime is low in the red soils; humus is in striking defect everywhere. 'Wet' soils are much better; they are chiefly formed of the mixed alluvium washed from the hills and uplands, and are fairly manured. 'Garden' land is naturally good by its position in fertile bottoms, and is laboriously improved by tillage and manure.

The agricultural year nearly coincides with the 'Fasli,' that is, from 1st July to 30th June. It has four periods: that of the south-west monsoon (1st June to 30th September), of the north-east monsoon (October to December), of the dry season (January to March), and of the hot season (April and May). In the first, the sowings on the lighter classes of unirrigated land take place, each successive shower adding to the area; the crops sown vary in the several Districts, where each crop has, generally speaking, its appropriate date; the heavier soils are not usually sown till late in this period or early in the next, the southern Districts being usually later than the others. For light soils a succession of showers is needed, but they may be slight; for heavy black soils slight showers alone are useless, but when once the land has been thoroughly soaked its retentive power enables it to mature good crops with little subsequent rain. The great deltas and other tracts irrigated by rivers fed by the south-west monsoon are cultivated from June onwards, the precise season and class of rice varying according to local custom. The north-east monsoon period is important for the other irrigated lands, since the rain-fed tanks draw their best supplies from the heavy rains of October and November,

those from the south-west monsoon being uncertain. Crops of an inferior or precarious character are also largely sown in most Districts towards the end of this period. In the third period there are few sowings, but the scanty rains are useful for pasture and for refreshing standing crops. The rains in the fourth period or hot season are of great agricultural importance, for with them vast areas are ploughed ready for sowing; in some Districts large areas of gingelly (*Sesamum*) and other crops needing little rain are sown, pasture revives, and occasionally a second crop of lint on standing cotton plants is brought on.

Agricultural practice differs widely according to conditions. Tillage is generally superficial; in the light thin soils of the dry Districts it is so from want of rain for preparatory work, from the necessity for rapid and extensive sowings with the precarious showers of the south-west monsoon, and from the nature of the cattle and implements. The ordinary tillage of the black soils is also superficial, but every few years these should be deeply broken up: the prophylactic value of deep tillage against drought is then frequently visible in the Deccan Districts. For superior crops, such as sugar-cane, tobacco, and 'garden' crops generally, the tillage is thorough and laborious, and a fine seed-bed is obtained by numerous cross-ploughings. On irrigated lands swamp-cultivation is most in vogue, a shallow surface soil being laboriously stirred with water into fine mud, while the subsoil is left as a soapy impervious pan.

Implements are few and simple. In the Tamil Districts the light plough—a single-tined grubber or cultivator—is almost the sole cattle-power implement; in the Telugu Districts, chiefly of the Deccan, bullock-hoes, scrapers, and seed-drills are also in use, and the heavy black soils are broken up with huge and cumbrous ploughs drawn by five or six pairs of bullocks; thousands of costly iron ploughs have now replaced these last-named implements; in the south the crowbar is used for breaking up black soils. Simple water-lifts, worked by cattle or human power, are universal, and the iron sugar-cane mill is replacing the wooden one. Carts are fairly numerous (505,000), and have greatly increased during the last few years: they average 22 per 1,000 acres cultivated. Except simple manual tools, other implements hardly exist.

Live-stock have increased with the spread of cultivation; but they are generally of poor quality, undersized, ill fed, and ill cared for, though excellent breeds and good cattle are available upon demand, as for heavy draught in the strong soils, for well-work, and for road haulage. General practice is defective in both breeding and feeding. The universal system of common pasturing, in which cattle of all ages wander in promiscuous herds over the open arable lands and village

wastes, ensures immature, mongrel breeding and the spread of disease; and since, in general, there is no system of fodder-growing, only the scanty wild pasture of the unoccupied lands, and the grazing and stubble on the arable lands and leaves from trees, are available for ordinary cattle. The straw of the crops, occasional fodder crops and rough pastures, cotton seed, some oil-cake, crop-thinnings, and weedings are generally kept for the working and best cattle. Forests, when available, supply grazing, but vast areas are far distant from even the semblance of a forest. Horned cattle, moreover, are seldom slaughtered, so that large numbers of worn-out beasts return nothing but scanty manure for the food consumed. Hence the mere number of cattle is no gauge of their power or productive value. District figures vary greatly per 100 acres in numbers, age, and sex, according to soil, irrigation, &c., or according as cattle are bred or imported; but for the Presidency (including the West Coast) the latest figures are, though understated:—15·05 million cattle and 13·3 million sheep and goats, compared with 14·5 and 12 millions in 1890, being an increase of 4 and 11 per cent. respectively; the numbers per 100 acres cropped are 62 cattle and 55 sheep and goats, compared with 62 and 51 respectively. The area tilled per pair of plough cattle averages 9 acres, but varies greatly according to soil, class ('wet' or 'dry') of cultivation, existence of labour-saving implements, &c. Some black-soil areas, such as Kurnool, return 30 to 40 acres per pair, while lighter soils show from 10 to 20 acres; in irrigated tracts the area averages about 6 acres. The chief breeds of cattle are the Nellore (from North Nellore and Guntūr), which are heavy, big animals weighing up to 1,500 lb., the best milkers in the Presidency, and prolific breeders, calving almost annually; the Mysore breeds of different names and types, such as Mahādeswarabetta, Alambādi, Mecheri, Bargūr, and Tiruchengodu in Coimbatore and Salem Districts; the Kāngayam, Pulikulam, and Kilkād in Coimbatore and Madura; the Punganūru of North Arcot; and the Dupād and Erramala breeds of Kurnool. These are all regular breeds of distinct types raised by large ryots or cattle-breeders, of good quality and commanding fair to high prices. The yield of milk may amount, though rarely, to 20 lb. (8 quarts) in the best milking breeds, while the trotting cattle of the Alambādi, Kāngayam, and other compact breeds will trot up to 7 miles an hour.

Buffaloes ($2\frac{1}{2}$ millions) are of various breeds, those called Kampli (Bellary) and those of Vizagapatam and the Nīlgiris being the best. The cows are valued for milk; the males are used for heavy ploughing (chiefly in the 'wet' lands) and for slow heavy draught, but, especially in the south, are little valued as compared with females, and are sacrificed at shrines, usually as calves, in immense numbers.

Horses and ponies are of little value. Sheep are numerous but not

generally of good quality, though several breeds—such as the big Nellore sheep standing 3 feet high and weighing 80 to 100 lb. each, the small Coimbatore woolly Kurumba breed, and the Mysore breed in parts of the Deccan—are fair. The wool is usually poor in quality and yield, seldom exceeding 1 to 2 lb. per fleece; the mutton, averaging 20 to 25 lb. clean weight, is generally inferior. Goats, of two main breeds, are highly useful, being hardy and able to pick up a living anywhere in most seasons. Together with sheep, they are largely used as manuring agents, wandering over the village by day and penned at night on the fields of those who have hired their services. They are very prolific, and will produce from two to six kids in the year. The value of a sheep or a goat may vary from Rs. 2 to Rs. 10.

Pigs and poultry are numerous, but their maintenance is, under the customs obtaining, hardly an item of agricultural practice. Bee-keeping is unknown.

Dairying is very backward, though *cholam* stalk (*Sorghum vulgare*) is one of the best fodders in the world for milch cattle. The yield of milk from cattle is small, though the quality is not inferior; it is not above 2 to 4 lb. from the common mixed breeds, and from 8 to 20 lb. (rare) in the good class. Buffalo milk ($1\frac{1}{2}$ million cows) is fair in quantity, and the milk is far richer than that of English cows in butter-fats and solids. Good milk is also largely obtained from sheep and goats. But as the holdings in general are very minute and devoted to arable farming, the milk yield small, and the feeding inadequate, while co-operation in such matters is unknown, the dairying of European countries is not practised. *Ghī* (clarified butter) is, however, made largely, while curds and butter-milk are staple items of production.

The produce of stock in manure, milk, wool and hair, hides and skins, meat and bones, apart from that of their labour in the farms and on the roads, forms an immense addition to the income of the agriculturists and breeders.

There are numerous annual cattle fairs, especially in the southern part of the Presidency, and many of the weekly markets are almost equally important: the annual fair at Madura in April will have 30,000 head displayed for sale, at prices from Rs. 100 to Rs. 400 per pair. These fairs and markets enable ryots, cartmen, and the richer classes to supply themselves with good cattle, the ordinary methods sufficing for the common and cheap breeds; the Deccan is generally supplied by drovers from Nellore and Guntūr, who bring young stock for sale on a three-year instalment system, which is well conducted on both sides, though somewhat expensive.

Practice regarding manures is defective, partly from poverty. Dung from the stalls or elsewhere, the droppings of cattle, sheep, and goats

penned on or wandering over the fields, town and village sweepings, ashes, leaves and twigs, indigo refuse, &c., are chiefly in use. Cattle manure is badly and wastefully prepared; and besides what is burnt and used in plastering walls and floors, much is lost by pasturing cattle on the wastes and, for several months together, in the forests. Bones are not used directly; saltpetre is occasionally used indirectly in the application of old village-site soil, but not otherwise; the very valuable tank silt, available in millions of tons, is seldom applied, while the one universal, natural, and almost sufficient manure, human excreta, is abhorred, though availed of indirectly in the fields immediately around the village site and, in some cases, by useful blindness in the collection of village and house sweepings. Poudrette is nowhere made; artificial manures, fish, &c., are practically unknown; and green manuring, so necessary for dry, arid soils, is little practised except in the use of masses of leaves on 'wet' lands. In some Districts all forms of village and house manure are frequently gathered or dropped into pits and used at intervals; and in the hedged areas of Coimbatore and Salem, cattle and sheep are penned continuously on the gardens; the refuse of slaughter-houses and tanneries is used, and certain oil-cakes. But, speaking generally, practice is primitive, the quality of the manure is poor from poor feeding, while the much too scant quantity is chiefly given to the irrigated and garden lands, so that most 'dry' lands get little or nothing. For manurial and many other necessities the need for hedges, wherever practicable, and for abundance of trees, especially private, is very great.

Rotations are hardly practised as a system, though experience adopts advisable and avoids improper sequences in special cases. But the universal method of mixed crops, especially of legumes with cereals, largely takes their place, permitting continuous cereal cropping by the power of the leguminous root-nodules to acquire free nitrogen; probably the effect would be better if pulses were not, as often, pulled up by the roots. One-fifth of the land, usually the poorer portion, is in bare fallow or pasture; the bare fallows fall short of their restorative value, since the lands are often left untilled; relinquishments and Government sales and purchases are largely due to this need for fallowing.

Diseases and pests among stock and crops are sadly prevalent and cause great losses. Cattle diseases, their prevention and cure, are being studied, and official veterinary work is slowly developing; but the general management of stock is so defective, the customs regarding the sick and dead so provocative of the spread of disease, the field so vast, and passivity and ignorance of good veterinary treatment so great, that enormous effort and a long period are necessary to make a satisfactory impression. Little is known of the various

pests, insect and fungoid, which affect crops; the Government Botanist has begun work on them, but a staff of assistants is necessary in the total absence of private and amateur help.

To sum up: the climate and solar heat are tropical, and—excluding favoured tracts such as the West Coast, the great deltas, &c.—the rainfall and water-supply are uncertain, variable, and often scanty, atmospheric humidity is frequently slight, and natural soils over vast areas are moderate to very inferior. Hence on immense tracts, man can live and increase only by the ceaseless and intelligent application of the whole art and science of agriculture; and when, from any cause, such application is defective, or when natural conditions fall seriously below normal, there must result danger and possibly disaster. Yet, in practice, tillage is defective; stock are productively inadequate and largely ill cared for; cattle-power implements, though ingenious, are primitive, and in the Tamil Districts almost absent; manures are low in quality and gravely insufficient in quantity; capital is scanty and credit too frequently mortgaged; the ryot is too isolated a unit; and, though hereditary skill is considerable, there is lacking that basis of wider knowledge which alone renders possible an intelligent adaptation or development of practice to meet new conditions, which have swiftly supervened upon a rapid increase of population over unimproved soils and the opening up of trade.

The chief general remedy, though very partial and insufficient and most difficult to apply just where it is most needed, is irrigation. On the West Coast the abundant rainfall renders artificial irrigation, except of the simplest sort, unnecessary. East of the Ghāts the numerous irrigation works referred to below, which include 6,000 dams thrown across rivers (and the many channels fed by them), 33,000 tanks or reservoirs, and 7,000 channels tapping the surface or underground flow of the rivers, irrigate 4·9 million acres as well as above a million acres of second crop. In addition, an increasing number of permanent wells (667,000 in 1900-1) water above a million acres, besides a second crop on 43 per cent. of that area. On the whole, nearly 29 per cent. of the crops grown east of the Ghāts are irrigated in an ordinary year.

On irrigated lands practice differs according to the water-supply. When flow-water is abundant, nothing but rice is grown, chiefly by swamp cultivation. The swamp method is necessary on existing rice flats irrigated solely by surface flow, where, in view of the rights of the adjacent holders to the water, it cannot be allowed to sink into the ground and be drained away at lower levels. When lifted, as from wells, water is used economically; there is no swamping, but the soil and subsoil are kept healthy and porous, the water largely draining back to the well; practice can hardly be improved, and crops

are heavy and almost continuous. Irrigated lands are well manured, either naturally, by the silt from river water, or artificially, swamp cultivation requiring (*inter alia*) the extensive use of leaf-manure, the supply of which is a question of much practical importance. Irrigation on all the lighter soils is a panacea as regards crop-growth when manure is supplied, but on strong retentive soils may be mischievous if applied in the usual swamping fashion, since they are easily water-logged. Hence the ryot on such soils prefers to grow crops by rainfall, with occasional floodings only in case of drought, so that the protection of these areas by state irrigation is difficult, owing to the conflict of interests between agriculture and irrigation revenue.

Of the gross area (29·5 million acres[1]) of crops on *ryotwāri* and *inām* lands, 80 per cent. is occupied by food-crops. Rice occupies 26·4 per cent. of the gross area, and yields from 7 to 10 cwt. of clean rice per acre, or much more heavily than any other cereal; the maximum rises to over 30 cwt. on the best 'wet' or 'garden' land. The crop is usually, though not always, irrigated, and under swamp cultivation requires an almost continuous supply, equal, in five months, to 8,000 to 10,000 cubic yards per acre. Manures are river silt (from the irrigation water), leaves, village sweepings, dung, &c. *Cholam* (*Sorghum vulgare*) occupies 13·8 per cent. of the gross area, is usually unirrigated, but yields heavily in grain ($3\frac{1}{2}$ to $6\frac{1}{4}$ cwt. per acre) and straw if irrigated eight or ten times in a period of about 100 days. *Cambu* (*Pennisetum typhoideum*) covers nearly 10 per cent. of the gross area, yields $3\frac{1}{4}$ to 5 cwt. per acre, and is seldom irrigated. *Rāgi* (*Eleusine coracana*), which occupies 5·4 per cent. of the gross area and yields from $4\frac{1}{4}$ to 5 cwt. per acre, is grown both as a 'dry crop' and under intermittent irrigation. For all these crops any manure available is used.

About 15 per cent. of the cultivated area produces industrial crops. Cotton (1,740,000 acres) is grown as an annual chiefly on black soil, but also, occasionally, as a triennial on red soils; it is never irrigated. The average yield in normal years varies according to soil and District from 30 to 90 lb. of lint, but this estimate is alleged by the trade to be too low. Seeds are three times the weight of lint; oil is not manufactured from them, but they are used unpressed as cattle food. Oilseeds taken together occupy a larger area (2,082,000 acres) than cotton; gingelly (*Sesamum indicum*), castor (*Ricinus communis*), and ground-nuts (*Arachis hypogaea*) are the chief; the last named is largely grown in South Arcot and exported from Pondicherry. Indigo (242,000 acres) has shrunk from nearly 2 per cent. to below 1 per cent. of the total cultivated area. Sugar-cane

[1] The figures of crops include those of the West Coast. Details appear in Table IV at the end of this article (p. 352).

keeps its usual low area (50,000 acres), having increased by about one-half in forty years; the cost and delay in returns check extended cultivation, since profits are good upon an average yield of 45 cwt.; the crop gets thorough tillage, plenty of manure, and regular though not continuous irrigation for nine or ten months on well-drained soil. Sugar is also obtained in immense quantities from the palms. Tobacco is grown on the greatly increased area of 134,000 acres, largely as a 'garden' crop with well-irrigation, ashes and brackish water being considered good for the crop: 1,000 lb. of dry leaf per acre is a low average. Production and manufacture have been greatly improved of late years by European factories and the introduction of foreign seed, but immense expansion is possible for the foreign market. Various condiments and spices are grown on 413,000 acres, having increased by one-third since 1880–90. Tea is grown on only 12,000 acres by individual planters; coffee on 51,000 acres, chiefly but not entirely by Europeans. Cinchona (3,300 acres) has largely decreased, but rubber of various species is being planted on hill areas. Orchards (780,000 acres) comprise only areas classed as such, including the coco-nut plantations of the West Coast, but not the vast unrecorded masses of palms and other fruit trees scattered over and on the margins of fields and in backyards. Fodder crops (228,000 acres), though occasionally grown elsewhere (e.g. in Tinnevelly), are chiefly recorded for Kistna District, where, though much understated, the statistics relate to the areas sown with *san* (*Crotolaria juncea*) grown for fodder, without revenue charge, after the rice crop on irrigated land. Vegetables of many kinds and character are grown everywhere, whether in irrigated gardens, or mixed with ordinary crops, or otherwise; the unrecorded cultivation in the plot usually attached to every cottage produces immense quantities of this class of crop.

In normal years 29 million acres are recorded as cultivated on an area of about 25 million acres of *ryotwāri* and *inām* land; more than 3 million acres thus produce a second crop, of which half is on 'dry' land, including above half a million acres of second crop from well-irrigation, and half on 'wet' land. The West Coast area, however, is greatly understated, as shown by the settlement operations now proceeding; South Kanara would starve on the figures recorded, whereas it exports rice largely. Second and third crops (grown with well-irrigation) and fodder crops are also imperfectly reported, and the area of pulses grown in mixed crops is understated. Table IV at the end of this article (p. 352) shows cultivation for twenty years, but the frequent bad seasons of the second decade have kept down the area. Comparing 1904 with 1880, the area cultivated has extended by 26 per cent. and that of crops grown by 35 per cent.;

population on the area by 29 per cent.; first-class river irrigation and that from wells has also increased, together with other intensive methods such as *ottadam* or combined short and long rice crops in Tanjore and South Arcot, while the West Coast area, though it has increased, has never been so reported. Hence it is clear that, after deducting half a million acres for survey corrections, production has fully kept pace with population, notwithstanding the necessary resort to poor and unimproved soils.

The out-turns of food-grains quoted on p. 274 are those estimated with some care in 1898, but are only approximations; with soils, climates, practice, capital, and irrigational facilities so different and fluctuating, and with the agencies available, nothing is so difficult as correct estimation even of normal, still more of average, out-turns. Applying the various rates to the respective areas, the gross average result, exclusive of famine years, was 7·47 million tons of food-grains, including pulses, from 21·57 million acres of crop grown on about 19·3 million acres of *ryotwāri* and *inām* lands, with a population of 28 millions; from this a deduction for husking of one-third by weight is due on 4·35 million tons of rice; on the other hand, the pulses are included with cereals, though, weight for weight, far more nutritious. The average gross out-turn of food-grains was 6·93 cwt. (776 lb.) per acre of crop; if the needful husking deduction is made, it would be 5·58 cwt. (625 lb.); the corresponding out-turn per acre cultivated would be 867 lb. and 698 lb. respectively. Considering that the good yield of rice and garden cereals is included in this average, the small out-turn on the poorer soils may be inferred; even these figures are little higher than the yield of continuously unmanured wheat at Rothamstead, and most 'dry crops' obviously yield only the natural minimum. Recent reports tend, however, to show, on some areas, larger average 'dry' yields than are here stated, while the average area of 21·57 million acres of food-crops is considerably below that (22·3 millions at least) of a normal year.

Of the total population, 71 per cent. are engaged in agriculture, inclusive of cattle-breeders, labourers and others; 48 per cent. have a direct interest in the land either as owners or tenants. In *ryotwāri* areas there are 3,300,000 holdings with 5,814,000 shareholders, 67·7 per cent. being held by single owners. Of these holdings, 12·6 per cent. pay less than R. 1 as land revenue, 55 per cent. between R. 1 and Rs. 10, and 22 per cent. between Rs. 10 and Rs. 30. Excluding the West Coast, the smallest class averages three-fourths of an acre assessed at 11 annas, the next class 4 acres paying Rs. 4–8, and the third class about 10 acres paying Rs. 16–4. These nine-tenths hold 61 per cent. of the total area, including, however, only 31 per cent. of the irrigated area. In addition, about $4\frac{1}{4}$ million acres of 'minor *inām*'

land are held, mostly by the same ryots, and about 750,000 acres, not in holdings, are cultivated annually with catch-crops. These figures show the minuteness of *ryotwāri* holdings, and those in *zamīndāris* and 'whole *inām*' villages are similar; many of the landholders eke out their living by wages or by renting land. Moreover, the best land is under occupation, and that remaining is usually the unimproved, arid land, which requires great skill, labour, and some capital to make permanently productive: this is well seen in Anantapur. About one-fifth of the holdings are annually left fallow, partly as grazing ground (especially in Godāvari and Kistna Districts) and partly to recuperate. In the *ryotwāri* areas east of the Ghāts, about one acre is under cultivation per head of the population, taken as 22·35 millions exclusive of Madras City; but while the rich Tanjore delta, chiefly irrigated, maintains its 2¼ millions on half an acre apiece, the large dry District of Bellary shows a cropped area of above 2 acres apiece for less than a million people, or four times the Tanjore individual area.

These figures suggest and explain many difficulties attending agricultural practice and progress. Madras agriculture, with its irreversible minuteness of holding, can be permanently successful only in so far as it approaches garden cultivation or the spade-husbandry of allotments. The ideal for Madras is the Horatian *modus agri non ita magnus, Hortus ubi et tecto vicinus iugis aquae fons, Et paullum silvae* . . . .

Among such small folk the necessity for frequent and cheap borrowing is obvious; but, as in other countries of small holdings, wherever the organization of credit is absent, the isolated position of the individual ryot in such matters renders credit dear and indebtedness serious. The amount of debt, its causes, objects, rates of interest, and its burden on the land have never been completely studied; but, from calculations made, it is probable that indebtedness—including urban—at any one time is at least 45 crores at 15 per cent. interest, and that the people annually pay as charges (interest, stamps, fees, &c., but exclusive of the cost of litigation) a sum which exceeds 6 per cent. interest on that debt by an amount equal to the whole land revenue. From a recent examination of 83,000 registered documents, it appears that four-fifths of the registered debt outside of Madras City is owed to ryot-creditors, and that professional money-lenders are in a small minority; floating debt in cash or grain, at least equal in amount to all mortgages, is probably owed in a still greater degree by ryots to ryots. Of mortgages, rather less than one-third are with possession. Interest on mortgages varies between 6 and 36 per cent., but three-fourths pay between 9 and 18 per cent.; non-mortgage debt bears somewhat higher interest. Probably almost all ryots borrow at one time or other; but a large number are, as their class in India always has been, continuously in debt, unable to begin cultivation or to subsist during the growth of the

crops except by petty borrowing, and returning at harvest time all but a moderate surplus to their creditors; many more are frequently in difficulties. On the other hand, large numbers are perfectly solvent, while the immense relative proportion of ryot-creditors scattered all over the country shows that very many have accumulated surplus capital. Indebtedness is no new thing. Its universality and character were more striking in the first half of the nineteenth century, and the creditor then was usually a shopkeeper or merchant to whom the crops were hypothecated before they were reaped; the change to the ryot-creditor is noteworthy. But even at the present day the amount of debt relative to land and crop values is large, its burden heavy, its interest high, and the result in improvements or profits a minimum[1].

To remedy, to some extent, the want of capital for improvements and stock, state funds have been advanced since 1889 under the Land Improvement and Agriculturists' Loans Acts of 1884. Under the former the advances have been 29 lakhs, with which about 20,000 wells have been constructed, and 26 lakhs, with which an even larger number have been repaired; the area benefited is about 138,000 acres. In addition, 20 lakhs has been granted for other miscellaneous improvements, such as reclamation. Under the latter Act 22 lakhs has been advanced, with which 40,000 cattle have been bought, many houses built, and other agricultural improvements effected. The development of the system is now under consideration. But the want of capital cannot be directly supplied by the state; and to remedy this want, and to remove or lessen the burden of indebtedness which has ever been a grave hindrance to agriculture, the establishment of agricultural banks in one or more forms is being sought. The village system of the Presidency, the co-operative habits of the ryots in irrigation and other communal matters, the presence of many retired officials and public-spirited men of various classes throughout the country, and the success of indigenous methods of co-operative credit, as exemplified in the *nidhis* or mutual loan funds with a membership—largely urban, however—of about 40,000, a paid-up capital of about 75 lakhs, deposits of about 25 lakhs, and loans outstanding of nearly 100 lakhs, give promise of gradual success with the aid, at first, of some Government supervision and small assistance.

The Agricultural department is now developing. Two experimental farms have been started, which have already been useful in exemplifying the seasonal difficulties of the Presidency; veterinary work on a larger footing has begun; the hands of the recently appointed Government Botanist are full, including an experimental inquiry into

[1] See Mr. Srīnivāsarāghava Ayyangār's *Memorandum* of 1893, and the *Report on Agricultural Banks* (1895), vol. i, pp. 229–42.

sugar-cane disease and into indigo; the work of the statistical branch has improved and is now being reorganized; and important recruitment is expected on the purely agricultural and chemical sides. The College of Agriculture, with its educational farm, has continued for years to train students in agricultural science, but, for various reasons, these have not yet been able to influence agriculture. A scheme has now been sanctioned which embraces the establishment of an Agricultural College and laboratory, equipped with experts in agriculture and allied sciences, at Coimbàtore; the strengthening of the central organization dealing with these matters; and the establishment of a number of experimental farms at suitable centres. Agricultural associations are rapidly forming in the various Districts, which will be linked together through the Technical Institute at Madras.

Something has already been said regarding the considerable area of the eastern side of the Presidency which is under irrigation, and of the practices followed in the cultivation of 'wet' land.

The irrigation works administered by the Government may be divided into three main classes. In the first of these come what are technically known as 'major works,' the outlay on which is usually met from Imperial funds. These include the great systems in the deltas of the Godāvari, Kistna, Penner, and Cauvery, and important undertakings such as the KURNOOL-CUDDAPAH CANAL and the PERIYĀR PROJECT. The delta systems depend upon great masonry anicuts or dams, which have been thrown across the rivers at the head of the deltas, and consist of a network of canals and channels to distribute the water so rendered available. The second class of irrigation works is financed from Provincial funds, and comprises such 'minor works' as are of sufficient importance to require separate accounts of their capital and revenue expenditure. It includes chiefly the systems dependent upon the dams across the lesser rivers and a few of the largest tanks or artificial reservoirs. The third class includes the thousands of smaller channels and tanks throughout the Presidency, for which no capital accounts are kept. The larger of these are maintained in repair by the department of Public Works, and the smaller are in the charge of the Revenue officials. The clearance of smaller channels and similar petty repairs are generally carried out by the cultivators themselves, by what is called *kudi-marāmat* or customary labour. In some Districts a special irrigation cess at varying rates is voluntarily paid by ryots holding land supplied by some of the principal river channels, in lieu of the customary labour due by them; and the money so collected is spent by the Revenue officials in executing the petty repairs elsewhere performed by *kudi-marāmat*.

The figures in Table V at the end of this article (p. 353) give, in lakhs, the financial results of these three classes of works in recent

years. The expenditure includes working expenses and interest on capital outlay. It will be seen that the larger schemes have proved a profitable investment, paying a return of more than 4 per cent. on their capital, and that in the aggregate the revenue from the very many small works (96 lakhs) is most important.

Practically all of the thousands of lesser tanks throughout the Presidency were constructed before the British occupation. They are formed by throwing earthen banks across natural depressions, or the course of streams, in order to store rain-water. But except the system in the Cauvery delta, the basis of which was constructed by former native governments, all the larger works are a product of British rule.

The sums due from the cultivators for the water they use are collected with the revenue payable upon their land. Except in the case of the Kurnool-Cuddapah Canal, where the system differs, land to which water can be applied is classed as 'wet,' and a consolidated assessment, which includes payment for the water, is levied upon it. If a cultivator uses water upon land classed as 'dry' he is charged 'water rate.' The share of the revenue which should be credited to the irrigation works is apportioned according to fixed rules.

Besides the Government irrigation works, there are the very numerous wells belonging to the cultivators, from which nearly a quarter of the whole irrigated area is watered. These are nearly always large permanent constructions, often with a masonry revetment. The average area irrigated by them is only 3 acres, which is much less than in Northern India; but one reason for this is that they are generally used for growing valuable crops which require much water, rather than for the occasional irrigation of the ordinary cereals. The expense of excavating them naturally differs greatly with the character of the soil. In the southern Districts they can often be made for Rs. 100 or Rs. 150, while in the rocky Deccan they cost three or four times this sum. In the Deccan the water is usually raised by a *mot*, a large leathern bag which is hauled up with a rope and pulley by two bullocks, while in the south the most popular water-lift is the *picottah*, consisting of an iron bucket attached to a long elevated lever, which is operated by the weight of two or three men walking up and down along it.

The irrigation tanks usually contain coarse fish, the right of netting which is disposed of annually. The sea-fisheries along the coast employ thousands of persons, and the salting of the catches (see under Miscellaneous Revenue, p. 326) is a very considerable industry. The development of the fisheries of the Presidency is now under investigation by Government.

In Madras assessments are not based on rentals and there is

no record-of-rights, so that less is known of them than in some other Provinces. In the *zamīndāris*—with large exceptions, however—and in *ināmi* villages, the rentals are the *paimāsh* (original settlement) rates, which are generally much higher than present *ryotwāri* assessments. They frequently vary according to the crop, betel being charged Rs. 32 an acre while rice pays much less; an extra charge is occasionally made on fruit trees in addition to the land rent. The highest fixed *zamīndāri* rental is believed to be Rs. 45 per acre of irrigated land, but higher rates have been mentioned for sugar-cane in Godāvari District; from Rs. 20 to Rs. 40 per acre plus tree rent are contract rates for the *zamīndār's* own lands in a Salem estate where the *paimāsh* rates do not exceed Rs. 20; in some estates the rental on irrigated lands is one-half of the gross produce—less village servants' dues—taken in kind. In the great Kālahasti estate about half the produce on all lands is said to be claimed by the *zamīndār*, and in the neighbouring estate of Kārvetnagar rates are mentioned of 1,600 lb. of rice plus Rs. 4. An Act passed in 1865 to govern the relations between *zamīndārs* and other landed proprietors and their tenants provides for the adjudication by the Courts of disputes regarding rates of rent, when these are brought before them in accordance with the Act; but its provisions on this point are inexact, and for this and other reasons its amendment is under consideration.

Rents, wages, and prices.

Ryotwāri land is sub-rented on various systems—produce rents, in which from one-half to three-fourths or more of the gross produce is paid to the landholder; fixed amounts paid in kind; fixed money rents; and other less simple forms. On irrigated lands the sharing system is most common. From 1 to 1½ tons of rice worth Rs. 45 to Rs. 70 is not an uncommon rent on good double-crop land irrigated from the Cauvery in Salem, the maximum assessment compounded for the two crops being Rs. 14; in the Tanjore delta the *porakudi* (labouring tenant) defrays the whole cost of cultivation except perhaps manure (usually silt from the irrigation water), and gets from 18 to 33 per cent. of the grain and the whole of the straw. In five Salem villages irrigated by Cauvery channels, cash rents, for terms of four or five years, run up to Rs. 200 per acre, usually for betel gardens, and the registered leases in 1895–1900 gave an average of from Rs. 63 to Rs. 100; in other Districts similar sub-rentals are reported. In Coimbatore recent registered rentals on 6,902 acres of irrigated land were at rates between Rs. 28 and Rs. 72 per acre, 3,865 acres paying Rs. 44 and upwards and averaging Rs. 50, while the Government assessment averaged about Rs. 9. A turmeric crop on irrigated land paid a rent of Rs. 75, the assessment being Rs. 6; grain rents were from three-quarters to one ton of rice in land supplied by

Amarāvati irrigation. Another inquiry into the leases on 6,968 acres showed that the rental of 'dry' lands averaged 3·4 times, of 'garden' land (irrigated from wells, but including as much 'dry' as 'garden') 5·1 times, and of 'wet' lands 5 times the assessment; in many cases, chiefly 'garden,' the rental exceeded 8 times the assessment. In the same District one-seventh of the *ryotwāri* land in 592 villages was found to be sublet for one-half or a larger share of the produce. A general rental everywhere on common 'dry' lands is twice the assessment, but this may rise to five or even ten times on all classes of land.

Table VI at the end of this article (p. 353) gives the average wages of labour for the Presidency. The skilled labour shown represents that of masons, carpenters, and blacksmiths; the unskilled is that of ordinary labourers, chiefly rural. The table shows a slight increase from the period ending 1880, which included the great famine and high prices of 1876–8; wages then rose, and the subsequent scarcity of labour and the high prices of the last decade have kept them up.

For unskilled rural labour the daily rate is not an accurate guide to the monthly or annual rate, since employment is not constant. When agreements, which are numerous, are entered into, the annual rate for adult males may range from Rs. 30 to Rs. 60, wages, when low, being increased by perquisites and special allowances in clothes, food, &c. Rates differ considerably according to locality, ruling higher in Districts with a large urban population than in those which are mainly rural. They are, for example, above the normal in Coimbatore, which has a vigorous people with 70,000 irrigation wells (which require much labour) and considerable leather, cotton-pressing, and other trades; in the deltaic tracts; in Bellary, owing probably to the cantonment and the cotton trade; and in South Kanara, on account of its isolation, its wealth, and the coffee, tile, and weaving industries of Mangalore. Wages are also higher on the coffee and tea estates on the hills than in the low country, the labourer expecting sufficient remuneration to compensate him for his absence from home and to enable him to return with savings. Wages usually rise smartly in busy seasons, such as harvest. The influence of mines and factories has been local and slight, since these are but few; but in combination with the opening up of trade, with large state expenditure on roads, buildings, and irrigation works, with railways both in their building and working, with greatly increased private expenditure on skilled labour, with easy emigration and so forth, cash wages show a rise, notwithstanding a prolific labouring population. Domestic service, especially in Indian families, obtains wages far higher than forty years ago.

Wages in kind form the chief rural system, and are either permanent or occasional. The former class comprise wages paid by the month,

season, or year. The labourers either receive their meals—which are usually of the same nature as their employer's—with betel and tobacco, lodging, cloths, cash presents, loans free of interest, a proportion of the gross produce, an allotment free of rent, &c.; or they get fixed monthly grain stipends with various extras, and in some cases one daily meal. The rates are almost as numerous as the engagements. Custom is the basis, but is varied by demand, class of work, efficiency, caste, season, proximity to towns and other sources of employment, facilities for emigration, &c. Competition affects custom, but is not always traceable, since the variation is mostly effected by means of extra payments. Grain stipends vary considerably, but for an adult male may be from 4 to 5 lb. of unhusked rice, or from $3\frac{1}{2}$ to 4 lb. of millet, per diem; they probably average about twice the daily grain ration; wages are lower if the labourer is of too low a caste to be allowed to do household service. The value with perquisites is sometimes over 2 annas per diem. These wages are largely added to by the earnings of other members of the family as occasional labourers. There is little indication of grain wages being replaced by money wages except in or near towns; labourers desire grain wages as they are thus independent of prices; employers often prefer cash wages, which do not rise equally with prices. Occasional wages are rather higher than permanent wages, and are largely paid in grain, especially at harvest time, when they frequently take the form of a share of the crop; at this season there is competition by employers and wages are high.

A distinct rise is taking place in wages, both grain and cash; employers, Indian and European, complain that labourers will not take the customary rates, and that contracts, especially after advances of money, are frequently broken. It is clear that the variety of employments now available, the spread of communications, and the increase in emigration already referred to are taking effect.

Village artisans usually hold lands on favourable terms of assessment (*inām*); they are also paid by grain contributions at harvest and in other ways.

Table VI at the end of this article (p. 353) gives prices for food-grains, salt, and piece-goods, inclusive of famine years. In the first decade shown in the table the famine was that of 1876–8; in the last decade there were two famines, partial in Madras but severe in neighbouring Provinces, besides several bad years: hence prices were high almost throughout. The entries in the last column show the fall on the return of a good season. Famine does not appear to raise grain prices permanently, except in the case of rice; for those of 1880–90, and even those of 1895–6, were much lower than the average of the fifteen years previous to the famine of 1876–8, and those of 1903 are also

cheaper. The development of communications and trade now prevents the violent local fluctuations in the price of food-grains so common in old times, has made them responsive to fluctuations in distant parts of India, and has so equalized prices throughout the Presidency that differences due to locality are seldom greater than 10 per cent. on either side of the mean at any given time.

Salt has risen in price, but the improvement in communications has lessened the rate of increase; salt in Bellary sold at Rs. 3-2 per maund ($82\frac{2}{7}$ lb.) when the state charge at the pans was Rs. 2-11, as compared with a sale price of Rs. 2-8 in 1850 when the state charge was R. 1.

Cart hire does not include the hire of bullocks; with bullocks it varies according to the District from 10 to 16 annas for 10 miles with a load of about half a ton, the charge including the pay of the driver.

That the general standard of living is considerably higher than it was fifty years ago admits of no dispute. The advance has been slowest in such infertile areas as the Deccan, where a large proportion of the people are at the mercy of a light and uncertain rainfall; but statistics show that, even among this lowest class, those who have raised themselves from the position of day-labourers to tenants and from the position of tenants to owners of land is large. In the next higher grades of society finer clothing, more jewels, and better household utensils are to be seen, and rice has in some degree taken the place of the cheaper food-grains. Houses have increased more rapidly than the population, and the proportion of tiled to thatched dwellings has risen. There are no longer, as in the days of old, only the two classes of the very wealthy and the very poor, but a middle class in comfortable circumstances has arisen. Artisans, except the weavers, have shared in the general prosperity. In the upper ranks all these signs of well-being are even more marked. The professional classes have largely taken to European methods of living, and such statistics as those of the increase of deposits in the banks and of the imports of the precious metals are ample proofs of the advance which has taken place.

Forests.

The most important forests of the Presidency are in the south and west, on the Western Ghāts and the connected ranges of the Anaimalais and the Nīlgiri Hills, their distribution coinciding with the zone of excessive rainfall. The evergreen areas among them contain a number of timber species of tropical growth, some of which, especially where difficulty of access has left them undisturbed, attain an extraordinary size. Among the more characteristic genera of this West Coast tree flora may be mentioned *Artocarpus*, *Chickrassia*, *Vateria*, *Hopea*, wild nutmeg, and *Lagerstroemia*, with cardamoms in the undergrowth in the upper valleys.

The next most important forests are those which cover the slopes and plateaux of the northern portion of the Eastern Ghāts, extending from the Kistna northwards through the western parts of Godāvari, Vizagapatam, and Ganjām, and on into Bengal and the Central Provinces. The rainfall in this area is heavier than anywhere else except the West Coast. These forests are chiefly noteworthy for the *sāl* (*Shorea robusta*) in Ganjām and the teak in the western uplands of Godāvari, and contain (among other species) *Pterocarpus*, *Terminalia*, *Lagerstroemia parviflora*, and *Anogeissus acuminata*.

Situated between these two chief blocks of forest are two other less considerable wooded areas. The first of these lies in those portions of the Eastern Ghāts which run through Coimbatore, Salem, and North Arcot, and in the isolated ranges of the Shevaroys and the Javādi Hills. The rainfall here is much lighter and the forests contain no large timber, being chiefly remarkable for the best sandal-wood in the Presidency. The second of these two lesser areas consists of the Nallamalai range of the Eastern Ghāts in Kurnool and its continuation in Cuddapah District. The most representative species here are *Pterocarpus Marsupium*, *Anogeissus*, and, in the southern end, red sanders (*Pterocarpus santalinus*).

Outside these four principal forest areas, the Presidency is naturally well wooded wherever the trees have been left unmolested and the moisture is sufficient, though no individual trees attain large dimensions, and the luxuriance of the growth varies directly with the abundance of the rainfall. Thus, on the eastern slopes of the Mysore plateau and in the hills in the little Native State of Sandūr, there is a rich forest flora, of which the more characteristic species are *Hardwickia*, *Albizzia amara*, and *Anogeissus*; and even in the more closely cultivated Districts of the southern East Coast there is an abundant scrub flora, both persistent and invading, typical species of which are *Carissa Carandas*, *Maba buxifolia*, *Randia dumetorum*, *Albizzia amara*, and *Memecylon edule*. This growth, however, becomes gradually less hardy and luxuriant as the zone of lighter rainfall is reached, which lies farther inland, and in the cotton-soil plains of the Deccan dies away altogether, though certain species of timber trees, such as *Acacia arabica*, *Odina Wodier*, and tamarind, depend for their growth less upon climate than upon soil.

The most important artificial forests are the teak plantations of NILAMBŪR in Malabar, which cover about 4,500 acres. They were started in 1842 by the Collector of the District, Mr. Conolly, have been continually extended until very recently, and now form a very valuable property. From 1856 onwards varieties of Australian acacia and eucalyptus were planted by Government on considerable areas on the Nīlgiri and Palni Hills. They have thoroughly established

themselves, developing a rate of growth far in excess of that attained in their natural habitat; and the example of Government has been extensively followed by private individuals, with the result that the problem of the supply of fuel to the hill-stations on these ranges no longer causes anxiety. Elsewhere little has been planted except casuarina; but this has shown itself so well adapted to sand and to coast soil and climate, that native landowners have planted large areas of it in the neighbourhood of some of the more populous coast towns, and reap considerable profits from its sale as firewood.

There can be little doubt that the greater part of the Presidency was originally a thickly wooded country. The old Sanskrit poems speak of the South as one sea of forest, and even the military histories of the eighteenth century relate how troops had to cut their way through the jungle in tracts which now support nothing more than a meagre, stunted growth of scrub. Such cases of rigid protection of forest growth by private proprietors as exist point in the same direction. Gradually, however, as population increased and cultivation extended, the forest receded, until, except on the hills, the only growth which survived near villages was usually small patches of poor scrub, exposed to continuous degradation from goat-graziers, gleaners of firewood, and searchers for leaf-manure. During the last twenty years systematic action has been taken to check the ruin to which the forests were thus exposed. The danger had long been understood. Early in the last century the needs of the naval dockyard at Bombay led to the establishment of a state royalty on teak and other timbers in Malabar and South Kanara. This developed into a state monopoly, abuses arose, and it was abolished by Sir Thomas Munro in 1822. Nothing more was done until 1847, when the Malabar and Coimbatore forests were put under the department of Public Works. The first Conservator of Forests was Dr. Cleghorn, appointed in 1856. Under him and his successor, Captain (afterwards Colonel) Beddome, some attempt at protection, by the closure of small selected areas, was made, but the department was powerless for want of sufficient legal powers. In 1881 Dr. (afterwards Sir Dietrich) Brandis, Inspector-General of Forests to the Government of India, visited Madras, and as a result of his suggestions the existing Madras Forest Act (V of 1882) was passed and the department reorganized on its present footing.

The present method of procedure is as follows: A forest which it is desired to protect is notified under the Act as 'reserved' land, and clearing or cultivation within it is prohibited. An elaborate inquiry is then made into all private and communal rights existing over the area, and, subject to such of these as are established, the tract is then notified as a 'reserved' forest, wilful damage to which is punishable. At the same time endeavours are made to avoid hardship to the people

by a too rigorous extinction of their former privileges. The provision of fuel and fodder reserves is a recognized part of the policy of the department. Grazing is permitted on payment of small fees (which are remitted altogether in bad seasons), and thatching-grass and firewood are allowed to be taken freely on permits. Building materials are also granted free to the poorer classes whose houses suffer at any time from fires or floods. Small forest areas which are situated close to villages, and therefore constantly used by the people, are not usually 'reserved.' The forest tribes, as being most nearly affected by the restrictions, are allowed special privileges, including free grazing for their cattle, and are compensated for the restriction of their destructive shifting cultivation by obtaining regular work under the Forest department and by payment for the collection of minor produce, such as tanning barks and fruits, gums, wax, honey, dyes, cardamoms, rattans, &c., the receipts from which (especially from the tans) form a considerable item in the Forest budget. This shifting cultivation consists in felling and burning the forest growth, sowing grain among the ashes for a couple of seasons, and then abandoning the land until it is reclothed with coppice. If persisted in, the repeated firing kills the stumps of the trees, and the land then produces nothing but rank grass. The practice has been stopped in the Reserves, but it still survives in the three Agencies, on the West Coast, and in other smaller areas elsewhere.

A forest having been 'reserved,' the department sets itself to protect it from fire, to prevent unauthorized felling, and at the same time to supply local needs. This last object is now attained by the formulation of systematic working-plans, under which improvement fellings are concentrated on selected areas (which are subsequently closed in rotation), and the produce so obtained is placed upon the market. Roads, tramways, wire ropeways, and the use of elephants (the department has 80 of these, about half of which were caught by its own officers in pits in the forests) have brought within reach timber that was formerly almost inaccessible. Some of the rivers, notably the Godāvari and the Beypore river, are utilized for floating timber down to the low country. Wood which will not float is buoyed up with lighter kinds or with bamboos.

At the end of the year 1903-4 about 17,900 square miles (including forests leased from private proprietors) had been constituted 'reserved' forest, and a further 1,600 square miles had been notified as 'reserved' land and was awaiting the inquiry above referred to. Together, these tracts amount to 14 per cent. of the area of the Presidency; but the proportion varies greatly in different Districts, ranging from less than one per cent. of the District area (excluding *zamīndāris* and *ināms*) in densely populated Tanjore to more than 50 per cent. in the sparsely peopled Nilgiris.

For administrative purposes the Presidency is divided into three Forest Circles, each under a Conservator, which are again divided into 28 charges, each under a District Forest officer. These last are usually conterminous with Collectorates, and are subdivided into 'ranges' under rangers, and 'beats' under foresters or guards. The Conservators are under the control of the Board of Revenue, and the District Forest office is a branch of the Collector's office. The native upper subordinates have many of them received training in the Dehra Dūn Forest School.

The average revenue, expenditure, and surplus of the department in recent years are given below, in lakhs of rupees:—

	1884-90.	1891-1900.	1900-1.	1903-4.
Revenue . .	13	20	24	27
Expenditure .	10	15	17	18
Surplus . .	3	5	7	9

Of the expenditure, a very large proportion has been devoted to works of permanent benefit to the valuable forest estate which the Government now owns.

Mines and minerals.

Of the minerals of the Presidency, by far the most important is the salt obtained by evaporation of sea water in the numerous salt-pans along the coast of the Bay of Bengal. Statistics and particulars are given under Miscellaneous Revenue (pp. 325-327). Except salt, the only minerals at present produced in any quantity are manganese, mica, saltpetre, and building materials, such as clay, granite, laterite, limestone, sandstone, &c.

Manganese ore has been worked in the Vizianagram *zamīndāri* by the Vizianagram Mining Company since 1893. In 1903 the mines, which are surface excavations from which the mineral is extracted by manual labour, produced 63,000 tons of ore valued at over 4 lakhs, and employed 2,700 hands. The whole of the produce is shipped from the port of Vizagapatam, and most of it goes to England. The quantity of ore in sight in this neighbourhood is immense. Manganese also occurs in the Sandūr State. The ore there is rich, and mining has recently commenced.

Mica is found in several Districts, but is extensively mined only in Nellore. Operations there may be said to have been begun in 1887, but it was not until ten years later that the industry assumed considerable proportions. In 1904 the output in this District exceeded 230 tons, valued at more than 4 lakhs, and about 6,500 persons were employed in the mines. These are mainly owned by natives and are not elaborately equipped. The explorer generally selects his starting-point from surface indications, obtains a lease, and sets a few labourers

to dig pits. Should the plot appear promising, he increases the number of labourers and uses explosives to blast the rocks in which the mica lies embedded. In these early stages no expensive plant is used, though, if the excavations eventually reach any considerable depth, machinery worked by hand-power or driven by steam is employed for drawing up spoil or keeping the excavation clear of water. Of 66 mines opened out in 1901, machinery was employed in only four. The mica is obtained in rough slabs of various dimensions, which are trimmed, cleaned, and sorted on the spot, and then packed and shipped. Most of it is sent to the United Kingdom[1].

Crude saltpetre is obtained by lixiviating the nitrous efflorescence found in several Districts, and is then sent to refineries. Since edible salt can be educed in these processes, manufacture is permitted only under licence from the Salt department. In 1903–4 there were 1,400 factories managed by natives for the production of crude saltpetre and 38 refineries, and the amount of refined saltpetre made was about 600 tons. Of this, the greater part was produced in the two Districts of Coimbatore and Trichinopoly.

Exact statistics of the quantities of clay and building stone extracted are not procurable. Excellent clay for tiles and bricks is found on the West Coast, and thirty factories for utilizing it are working there. Pottery clays and kaolin also occur in several Districts. Granite, laterite, limestone, and sandstone are widely distributed, and have always been extensively worked. Granite was the favourite material in days of old for the wonderful monolithic sculptures in the Hindu temples, and laterite is the ordinary building material of the West Coast. Slaty slabs known as 'Cuddapah slabs' are found in the District of that name.

Many other minerals occur, but have not hitherto proved commercially profitable. Iron has been smelted in a primitive fashion by the natives from time immemorial in many Districts. The extraordinary deposits of magnetic iron in the KANJAMALAI HILL and other parts of Salem District are occasionally from 50 to 100 feet thick and run continuously for miles. The chief hindrance to working them is the scarcity of fuel, and so far operations have not been successful. Interest in the matter has revived of late years.

Coal of inferior quality has been found at BEDADANŪRU near the upper reaches of the Godāvari river, and prospecting there still continues. A company formed in 1891 to work the Ratsagampalle field in the same District extracted about 3,000 tons in five years and then went into liquidation. The same fate overtook another company which prospected recently in Chingleput District.

[1] For further particulars of mica in this Presidency see vol. xxxiv, pt. ii, of *Memoirs, Geological Survey of India.*

Gold is washed in the rivers of several Districts. The only considerable production recently has been from a shaft (now closed) sunk by the Mysore Reefs Company in the Kangundi *zamīndāri* in North Arcot, which adjoins the well-known Kolār Gold Fields in the State of Mysore. The supposed capacities of the reefs in the Wynaad led to the floating in 1880 of numerous mining companies with an aggregate capital of four millions sterling; but the ore was found to be poor, the companies failed one after the other, and their machinery lies rusting in the jungle. The hope that modern methods, such as the cyanide process, might render the reefs profitable recently led a local syndicate to reopen operations; but this, too, has now abandoned the attempt. Work has also been done recently under European management on old native workings in the north of Coimbatore District[1].

Deposits of great extent of the rare mineral magnesite occur in some hills near Salem town[2], called the CHALK HILLS from the innumerable white patches of this substance which cover their sides. The existence of this magnesite has been known for many years; and as the result of a series of investigations recently conducted by private enterprise under expert advice, it has been found that the mineral is likely to be useful for making plaster, tiles, paving-blocks, &c., and also in refractory linings for furnaces and as a dephosphorizing agent in the steel industry. The output in 1902 was returned as 3,500 tons, but in 1904 the mines were closed for some time and the output fell to 1,315 tons.

Graphite, which has been worked in no other Province, is mined in Travancore, but the statistics of production are incomplete. In 1904 about 70 tons were also extracted in Godāvari District by the liquidator of the coal-mining company above referred to.

Corundum is plentiful in Coimbatore and Salem Districts, and is worked in a fitful fashion by the natives[3].

Diamonds were formerly largely mined in the Presidency, and both the Koh-i-nūr and the Pitt (or Regent) diamond are believed to have been found in it. Tavernier said that when he visited the mines at Kollūr (in Guntūr District) as many as 60,000 people were employed, and several other old workings are known to have existed. But at present the only operations are those of two companies which have been exploring near WAJRAKARŪR in Anantapur District. The villagers often find valuable gems on the surface in this neighbourhood.

Though it will be seen that little is at present being done to exploit

[1] For discussions of the probability of success in both these areas, see the reports by Messrs. Hayden and Hatch in vol. xxxiii of *Memoirs, Geological Survey of India.*

[2] See report of Mr. Middlemiss of the Geological Survey on these areas (Madras Government Press, 1895).

[3] For further particulars, see Part I (Corundum) of the *Manual of the Geology of India* (Economic Geology).

the mineral resources of the Presidency, it is a satisfactory symptom that prospecting has recently increased considerably, the number of licences issued having risen from 9 in 1899 to 13 in 1900 and 23 in 1901. In 1903 the figure fell again to 13. Information regarding minerals as yet unworked will be found in Part III (Economic Geology) of the *Manual of the Geology of India*, and in the *Madras Index of Local Minerals* by Dr. King and Mr. Middlemiss.

Arts and manufactures.

Of the indigenous arts of the Presidency, the only one which now employs any considerable number of persons is the weaving of silk and cotton, and even this is in a decaying state. Little more than a century ago (1796–7) the value of the cotton fabrics exported from India to England was £2,777,000, or one-third of the total of all Indian exports. In 1902 the imports of foreign cotton piece-goods at the port of Madras were valued at 171 lakhs, while the exports of the locally made fabrics amounted to only 59 lakhs. The exports to Great Britain include Madras handkerchiefs (repeatedly referred to in *Uncle Tom's Cabin*) and Ventupallam handkerchiefs. Natives of Southern India emigrate largely to Natal, Mauritius, the Straits Settlements, Ceylon, and Burma; and to these countries are consequently exported cotton goods adapted to the fashion and requirements of the emigrants.

An industry for which Southern India was till quite recently celebrated was the manufacture of block-printed and hand-painted cotton stuffs. Its decline was rendered conspicuous by a comparison of the collection of these fabrics exhibited at the Delhi Darbār Exhibition in 1903, with the splendid series which was sent to the Indo-Colonial Exhibition at London in 1886. Nowadays at former centres of this industry, e.g. Masulipatam and Wālājāpet, old wood-blocks, many with elaborate and beautiful patterns of Persian origin, may be seen piled up in corners or in the roof, covered with the dust and cobwebs of years. The printed cottons of Masulipatam consisted of canopies, screen-cloths, prayer-cloths, &c. At Kālahasti painted cloths are still made on which are depicted quaint illustrations of scenes from the Hindu epics, the Rāmāyana and Mahābhārata, with the story in Telugu characters; and at Cocanāda fabrics with the Tree of Life pattern are made, which, like those of Kālahasti, find a ready sale when brought into notice at exhibitions.

European manufactures have not hitherto produced anything which can compete with the fine cotton and silk cloths for female attire made at Tanjore, Madura, Kuttālam, Kornād, Kampli, Adoni, and Arni; and the satins made at Ayyampettai, Ariyalūr, Arcot, and Wālājāpet, for women's jackets and Muhammadan trousers, are of considerable beauty. The fine lace-like patterns on the fabrics of Paramagudi, Mānāmadurai, and Pāmban, when drawn or painted by hand with the first preparation

of wax, are exceedingly effective. The muslins manufactured at Arni and Chicacole have been justly celebrated.

Woollen carpets are chiefly made at Ellore, Masulipatam, and Ayyampettai. Twenty years ago samples from these places were declared by competent authority to be in no respect inferior to old specimens in the hands of connoisseurs in London, or in native palaces. The carpets woven at Ellore are now made mainly to English designs for export to Europe.

The manufacture of fine ornamental brass and bronze work, in the shape of many-branched lamps, sacrificial utensils, images, &c., for which Southern India was once famous, has become almost a lost art. The Madras Museum possesses a magnificent collection of arms from the Tanjore palace armoury, including two splendid damascened elephant goads of chiselled steel, which show to what a high state of perfection the local ironsmiths once brought their art. Of native jewellery, as worn by the upper as well as by the peasant classes, the Museum possesses a representative collection from all parts of the Presidency, acquired in connexion with the Indo-Colonial Exhibition. It has also a collection from Vizagapatam of little brass figures riding on horses, camels, and elephants, &c., which for skilful modelling, finish, and a certain irresistible grotesqueness of expression, are, Sir George Birdwood writes, the finest he has ever seen.

Tanjore is now the chief centre for metal-work, and the three main varieties made there consist of combinations of copper and silver and of brass and copper, and graven brass. The encrusting of copper with silver figures is a modern adaptation of an older art, and the demand for these wares is almost entirely European. The figures on trays, vases, and caskets are taken from the Hindu pantheon, and the floral decoration is conventional. Madras City has a reputation for its silver-ware, adapted to European requirements, with figures of Hindu gods crowded together. Brass trays and plates, into which thin plates of copper are let in or damascened, with crude representations of gods, are made at Tirupati. The pilgrims who resort to the local temple support the industry. There is also a considerable trade in small brass and copper deities of local manufacture. At Vellore exists an industry in pierced brass trays engraved with mythological figures. An interesting type of brass-work is carried on at Belugunta and other places in Ganjām, in the form of grotesque animals and human figurines, cast by the *cire perdue* process, which are said to be used as wedding presents by the hill-tribe of the Kutiā Khonds. At Madura brass models of lizards, the praying mantis, cobras, frogs and other animals are made, and well-executed samples of the industry are obtainable on special order. At Kurumbalūr in Trichinopoly District there is an interesting industry in the manufacture of brass trays and vessels inlaid with zinc.

Ivory work has developed into a considerable industry in Travancore and Vizagapatam. In Travancore ivory carvers used to be employed regularly by the Mahārājās; and some fine specimens of their work, in the form of tankards with representations of the Tulābhāram and other ceremonies, are preserved in the palace at Trivandrum. The throne made at Trivandrum, which was sent to the London Exhibition of 1851 as a gift to the Queen, is a notable production from this locality. In recent years ivory-carving has become a branch of the Trivandrum Art School, and a beautiful carved box received a gold medal at the Delhi Exhibition in 1903. Western influence has greatly affected the design and character of the articles turned out, which include hand-mirrors, combs, paper-cutters, deer, hunting scenes, and—'the Lion of Lucerne.' At Vizagapatam several firms make all kinds of fancy boxes, desks, paper-knives, combs, card-cases, bookstands, picture frames, chessboards, &c., of ivory, or of sandal-wood, rosewood, or ebony inlaid or overlaid ith ivory fretwork. Various devices of Hindu deities and European oral design are incised in the ivory, and filled in with black lacquer *graffito*). The industry is of quite recent origin. At Vizagapatam are o made various articles (animals, boxes, blotting-books, book-slides,) in bison horn obtained from the hill tracts, tortoise-shell, and ıpine quills.

e lacquer ware of Kurnool has been said to be perhaps the finest -work produced anywhere in India. The work turned out at ıasā in Ganjām is much bolder, and is suitable for decoration on a scale. A similar method of decoration was formerly used largely aracenic architectural decoration of interiors in various countries. urnool lacquer can be satisfactorily employed only for boxes, trays, ables, and other articles of furniture. The patterns are floral and in slight relief, and the colours are very bright, with much gilding. At Nosam, leathern dish-mats are painted with pictures of deities and floral designs. Native circular playing-cards and fans made of palmyra leaves, paper, and cloth, lacquered and painted in brilliant colours, are also made here. Lacquered toys are manufactured at Vellore and Kondapalli.

At Trichinopoly very elaborate and accurate models of the great Hindu temples, artificial flowers, and bullock coaches are made of the pith of *sola* (*Aeschynomene aspera*), which is also used in the construction of *sola topis* or sun-hats. The Madras Museum possesses a quaint pith model of the Rājā of Tanjore in *darbār*, made many years ago.

Much of the pottery so widely used by natives for domestic purposes possesses artistic merit as regards its shape. A collection is being formed by the Madras Museum, showing the marked variation, according to locality, in structure, shape, ornamental design, &c. At Karigiri,

in North Arcot District, the pottery receives a pretty green glaze, and is made into vases and other receptacles, some of which are imitations of Delft ware and other patterns introduced through European influence in recent years. Some of the water-bottles are double, the outer shell being pierced so as to allow air to circulate around the inner. In South Kanara water-vessels and toy representations of articles used for domestic or ceremonial purposes are made in black clay.

Of the mats of the Presidency, those made at Tinnevelly and Pālghāt are best known. They are woven with the split stalks of a sedge (*Cyperus corymbosus*). It is said that a good mat will hold water for twenty-four hours, and that in Tinnevelly they are made so fine that a mat long enough for a man to lie upon can be rolled up and packed into the interior of a walking-stick. The reed mats and basketwork of Parlākimedi, Shiyāli, and Wandiwāsh may also be noted.

At Settipālaiyam, a village near Tiruppūr in Coimbatore District, rock-crystal (quartz) spectacles, beads, *lingams*, figures of Ganesa, and other sacred symbols and images are made. The crystals are ground on emery disks made with powdered corundum, which abounds in the District. The amethysts found at Vallam near Tanjore are sent to Settipālaiyam to be polished. Articles for domestic use and carved idols are cut out of soapstone in several Districts. At Kārkala, in South Kanara, miniature copies are made in black stone of the colossal monolithic image there.

At Tirupati, the great place of pilgrimage, mythological figures are carved in red sanders or white wood, and sold as votive emblems to pilgrims who visit the sacred hill. The figures are rough in finish, but executed in a bold free style. In the Cannanore jail double coco-nuts (coco-de-mer) are richly carved, for use as liquor cases, with Burmese figures. Coco-nuts, for use as sugar basins, cruet sets, teapots, &c., are also carved with representations of peacocks, Burmese figures, and Hindu deities. The industry was originally started by Burman convicts, but has since been taken up by Māppillas, Tīyans, and others in forced retirement. In Travancore very spirited and well-executed designs are carved on coco-nut shells; and at Kārkala in South Kanara young coco-nuts are, in like manner, neatly carved with floral, conventional, and mythological designs.

The factories of Madras are insignificant, the only undertakings of importance being those connected with cotton. In the various cotton-growing areas—notably in the Deccan Districts and in Tinnevelly and Coimbatore—there are a number of establishments for ginning, cleaning, and pressing raw cotton for export to the weaving and spinning mills in England and America, at Bombay, or within the limits of the Presidency.

Originally all the cotton-presses were in Black Town, Madras, and

the raw cotton was brought to them in carts, taking months upon the road. The cotton famine in Lancashire caused by the American Civil War gave a great impetus to the trade, and it was shortly afterwards further encouraged by the construction of the Madras Railway towards the cotton-growing areas in the Deccan. As the line advanced the cotton was carted to the nearest station, and when it reached the Deccan the presses were transferred thither from Madras. Ginning and cleaning mills followed, but most of the Deccan cotton is still hand-ginned. Much the same course was followed in Tinnevelly and Coimbatore. In 1881 there were in the Presidency 34 ginning and cleaning mills and cotton-presses, and in 1891 the number was the same. But by 1903 these establishments (excluding those employing a daily average of less than twenty-five persons) had increased to 53, which employed altogether 3,100 hands.

Statistics of the cotton-spinning and weaving mills in the Presidency are given below:—

Number of	1881.	1891.	1901.	1903.
Mills	3	8	11	12
Looms	...	555	1,735	1,747
Spindles	48,000	173,000	288,000	288,000
Hands employed daily	1,400	5,900	12,600	12,000

Of the twelve mills working in 1903, five (including the Buckingham and Carnatic Mills, the two largest and the only ones in which weaving was carried on) were in Madras City, and three more were in Tinnevelly District. The total out-turn of all the mills is given below:—

	Thousands of pounds of	
	Yarn.	Cloth.
1896-7	29,319	5,285
1900-1	27,653	5,710
1903-4	28,714	5,344

The cloth woven is chiefly a coarse fabric, which is largely consumed locally and is also exported to the Straits Settlements and Ceylon. The yarn is nearly all of the lower counts, and much of it is absorbed by the hand-weavers throughout the Presidency. Formerly a large quantity went to China, but it has now been displaced there by yarn spun in Japan from American cotton.

After the factories connected with cotton, the works which employ the largest number of hands are those engaged in curing and otherwise preparing for export or use the coffee grown on the hill ranges. Except three in Coimbatore, all of these are situated on the West Coast, and (excluding, as before, the smaller concerns) they numbered 18 in 1903 and employed a daily average of 4,700 hands.

On the West Coast, especially in the Districts of South Kanara and Malabar, are found clays which are excellently suited for the manufacture of roofing and ornamental tiles; and twenty-eight factories, mostly under European management, were engaged there in 1903 in tile-making, while in Madras City there were three more, in one of which, besides bricks and tiles, cement and cement pipes were manufactured. These establishments employed 3,400 hands daily. The industry has grown rapidly in late years, the number of these works in 1891 having been only sixteen.

The cigar-making industry is another which has recently made great strides. In 1903 there were twenty cigar factories, in which 1,600 hands were employed daily. Most of them are in Trichinopoly. The three largest are at Dindigul, Madras City, and Guindy (just outside the city limits).

Factories in which sugar and spirits are made from sugar-cane and from the juice of various palms numbered three in 1881, five in 1891, and eleven in 1903. In the last of these years they employed 2,000 hands daily. The largest is that belonging to a European firm at Nellikuppam in South Arcot District.

Except indigo-making and tanning, neither of which is conducted in factories in the strict meaning of the word, none of the other manufacturing industries of the Presidency employs as many as 2,000 hands daily, and it is unnecessary to refer to them in detail. Those in existence in 1903 (excluding, as before, the smaller ones which employed less than twenty-five hands) comprised a bone-crushing mill, 15 fish-curing yards, 2 glass-factories, a hemp-mill, 3 hemp presses, 63 indigo vats, 7 iron and brass foundries, 28 oil-mills, 7 rice-mills, 7 ropeworks, 37 tanneries, and 4 timber-mills.

A striking feature of almost all the manufactures of the Presidency is the preponderance of European capital under European management. Native capital is invested in them to only a limited extent. The factories are too few and too scattered to exercise any appreciable effect on the labour market outside their immediate neighbourhood. The hands are drawn from the local labouring classes; and, as the employment requires a certain degree of special knowledge or skill, the rate of wages is somewhat higher than that which ordinary unskilled labour can obtain. The operatives are consequently slightly better off than their fellows, and there is no lack of labour.

Commerce and trade.

Commerce between England and Southern India began as far back as the early years of the seventeenth century, when the first factories were established by the Company at Masulipatam and elsewhere. The two commodities which formed the chief attraction to the merchants of those days were spices, especially pepper, and cotton fabrics. The manner in

which the Dutch raised the price of pepper against the English in 1599 was one of the inducements which led the latter to push the trade with India; even in 1627 the annual exports of this commodity were worth £208,000. The cotton fabrics were largely muslins, dyed stuffs, and white calico. This last derives its name from Calicut in Malabar. The English goods which found the readiest market in those days were woollen stuffs of all kinds.

In 1903–4 the total value of the maritime trade of the Presidency, inclusive of treasure and Government stores, amounted to more than 35 crores of rupees, or nearly 23 millions sterling; twenty years previously it had been only 14 millions. Of the total, 70 per cent. was carried on with foreign countries, nearly 23 per cent. with other Provinces, and about one per cent. with foreign ports in India; while 6 per cent. consisted of trade between the different ports of the Presidency. A comparison with the figures of twenty years earlier shows that the two former items have slightly increased in their relative importance at the expense of the two latter. The balance of foreign trade is in favour of Madras, exports usuall y exceeding imports by three millions sterling.

The statistics of the trade of the Presidency with other Provinces and countries will be found in Tables VII and VIIA at the end of this article (pp. 354, 355). On the whole, the largest imports are cotton piece-goods and twist and yarn. Next in value come metals and kerosene oil. By far the largest export is hides and skins. Next, but after a long interval, come raw cotton, coffee, and piece-goods.

Of the maritime trade nearly half is conducted through the port of Madras. Tuticorin stands next with about one-tenth of the total, and Cochin follows close after it. These two places have nearly trebled their trade during the last twenty years. After them come (in the order of their importance) Calicut, Mangalore, Cocanāda, Tellicherry, and Negapatam. In each of these eight ports the total value of the trade exceeds 100 lakhs, and over six-sevenths of the whole commerce of the Presidency is carried on at them. At the port of Madras, the chief imports and exports are those already mentioned as being most prominent in the statistics for the Presidency as a whole. Tuticorin receives the grain and pulse, cotton piece-goods, and spices required for the southern Districts, and is the outlet for the raw cotton, cotton goods, rice, sheep and goats, spices, and tea which they produce. Cochin exports tea, oil made from the nut of the coco-palm, and yarn and fibre manufactured from its husk, while its imports are chiefly grain and pulse. Calicut, Mangalore, and Tellicherry export to Europe the pepper and other spices for which the West Coast has been famous for the last three centuries, and also coffee, tea, and yarn and rope made of coco-nut fibre. Cocanāda ships much of the pungent

tobacco which is grown on the silt islands in the Godāvari river, and Negapatam sends rice to Ceylon and cotton piece-goods to that island and the Straits Settlements.

There are Chambers of Commerce at Madras City, Cochin, and Cocanāda. The first of these is the most influential of the three. It has the privilege of recommending for nomination a member of the local Legislative Council. Election to it is by ballot, and all merchants in Madras are eligible. There is also a Trades Association in Madras. The only Harbour Trust is that at the same city. Its position and powers are governed by a special enactment. The other harbours are merely open roadsteads.

Besides the ports, trade centres come into being inland wherever the chief articles of export are produced. Hides and skins are collected in the Districts where goats are most numerous, and sent by rail to Madras for export. Raw cotton comes to the presses which have been established at the chief towns (such as Bellary, Adoni, Tuticorin, Virudupatti, and Palladam) in the tracts where it is grown. Coffee finds its way to European agents at Calicut and elsewhere, who cure and export it. In every District there are one or more towns which are the recognized centres for the collection of exports and the distribution of imports.

Of the trade within the Presidency, the maritime coasting trade, as has been seen, is of small importance. Bad agricultural seasons cause an increase in the movement of food-grains from Districts in which there has been a good crop to their less fortunate fellows, but much even of this now takes place along the railways.

Rail-borne trade is registered in terms of certain fixed blocks of country, excluding the seaports, if any, within them. If the traffic with the seaports be left out of account, this internal trade consists in the exchange between the different blocks of the articles which each produces in excess. The maritime Districts in which there are Government salt-pans send salt, for example, to their inland neighbours; the delta Districts supply the less fertile areas with rice; the barren Districts where such crops as castor or horse-gram are perforce grown in large quantities send these grains to those tracts in which less hardy and more valuable staples are raised; areas blessed with forests send timber and bamboos to those which are not. Much exchange of the same kind is also effected by the bullock-carts of the country; but, except along routes through which it is in contemplation to construct fresh railways, this local traffic is not systematically registered, and it is not possible to gauge its extent or value.

Except when famine gives a temporary impetus to the movement of grain, this trade from one block to another is, however, insignificant in comparison with that which occurs between the inland marts and the

seaports. To the seaports come all the various articles produced or manufactured abroad which are now essential to the life of the towns (and even the larger villages) throughout the Presidency—European piece-goods, kerosene oil from Burma, and hardware and metals from England and the Continent—and these are distributed to the inland centres of trade by the railways. In return the Districts send by rail to the seaports, for export, their surplus produce—hides and skins, raw cotton, food-grains, spices (such as pepper, ginger, cardamoms, areca-nuts, and chillies), vegetable dyes and tans, &c.

As has been said, there are in every District one or more recognized centres at which the major part of the distribution of the imports and the collection of the exports is carried on; and these are assisted by smaller centres trading with them, which in their turn depend upon the weekly markets held in almost every important village, and by the ubiquitous small traders. The work is, as a rule, in the hands of particular castes of hereditary merchants—such as the Chettis of the Tamil country and the Komatis of the Telugu country. The members of the Nāttukottai subdivision of the former community are particularly enterprising, and frequently travel to Burma and the Straits, and even have correspondents in England and on the Continent. Musalmāns keep many of the petty shops in the towns; and the Labbais among them manage the collection of the greater part of the large exports of hides and skins, any connexion with leather being repugnant to the caste prejudices of most Hindus. Special crops, such as cotton and ground-nuts, are usually collected for the large exporting firms by native brokers, who go at harvest time to the areas where they are grown and purchase the produce direct from the ryots.

Table VII at the end of this article (p. 354) gives the principal imports and exports by sea from and to other Provinces of India. Among the imports, grain takes the chief place. It comes from Burma and Bengal, and the bad season of 1900–1 caused a great increase in the quantity received in that year. Piece-goods, twist and yarn, and salt are three other important items. All of these come mainly from Bombay. Of the exports, the chief are ground-nuts and coco-nut oil, the former of which goes principally to Burma and the latter to that Province, Bombay, and Bengal. Spices come next, which also go to Bombay and Bengal. Coco-nuts and ropes made of coco-nut fibre are other important items.

The rail-borne trade of Madras with other Provinces and States is chiefly conducted with the Nizām's Dominions and with Mysore. The export of grain to these States is very large; but otherwise the trade consists principally in the export to them of goods brought for them to the port of Madras by sea, and the import into Madras of articles which they wish shipped to other countries. The chief of these

exports are provisions, piece-goods and yarn, and sugar; and of the imports, hides and skins and leather. Coal from the Singareni mines in the Nizām's Dominions is a considerable item in the imports, and among the exports coal and coke from Bengal for the Kolār Gold Fields in Mysore used to figure largely. This last has decreased since the mines have been supplied with electrical power from the Cauvery Falls.

The trade with the French Possessions which lie within the Presidency, whether sea-borne or rail-borne, is of small importance.

It has already been seen that the trade with countries outside India amounts to 60 per cent. of the whole maritime trade.

The chief foreign imports are piece-goods, twist and yarn, metals, and kerosene oil; the chief exports are hides and skins, raw cotton, and coffee. The piece-goods market fluctuates with the agricultural seasons, a bad year greatly reducing the demand. The trade in kerosene oil has developed in a remarkable manner. This oil at one time came chiefly from America, but subsequently much was received from Russia. The imports from that country began in 1886–7, and rose to 37 lakhs, but have since declined. Foreign coal used to form a prominent item among the imports, and in 1895–6 amounted in value to 20 lakhs. In 1889–90, however, Indian coal began to compete, and has since gradually displaced it.

Among the exports, hides and skins continue to increase, but the trade has undergone a great change. Formerly it consisted largely of tanned skins, Madras products being much esteemed in the market; but latterly the American process of chrome tanning has quite supplanted the native systems, and the exports are now mainly made up of raw hides and skins, which are sent to America to be tanned there. The trade in coffee has fallen off, owing to the decline in prices. There was formerly a considerable export to China of twist and yarn made in Indian spinning mills, but these have now been largely displaced by goods spun in Japan from American cotton. Indigo has suffered from the competition of the synthetic dye, and sugar from the superiority and cheapness of the beet sugar of Europe and the produce of Java and Mauritius. Piece-goods made in the Presidency go in increasing quantities to the Straits Settlements, Ceylon, and the Philippines. Among minor items there have been notable advances in the exports of mica, manganese, ground-nuts, and tea.

Of the total foreign trade, 54 per cent. is with the United Kingdom. That with Ceylon ranks next. The island sends its spices and receives in return rice, oil-cake, cotton piece-goods, sheep and goats, and salted fish. The tonnage of the shipping between Ceylon and the Presidency has increased by nearly 70 per cent. during the last twenty years. The trade with the Straits comes third in importance. Madras imports spices and camphor, and exports piece-goods and animals.

The tonnage of shipping to and from the United Kingdom has decreased by 12 per cent. since 1880, while German shipping has advanced from 1,922 tons in 1880–1 to 122,000 tons in 1903–4. Russian ships were unknown in the former of these years, while in the latter they aggregated 32,000 tons. The United States and France have also increased their trade during this period.

Communications.

The railways of the Presidency belong mainly to two systems, both of which lie almost wholly within its limits. These are the systems worked by the Madras Railway Company and the South Indian Railway Company.

The former is on the standard gauge (5 feet 6 inches) and consists of three chief lines. The first of these is a section of the state-owned East Coast Railway, which runs from the Royapuram terminus in Madras City north-east through the East Coast Districts to Calcutta. The Madras Railway Company works the line as far as Vizagapatam (497 miles), beyond which it is worked by the Bengal-Nāgpur Railway Company. The second line starts from the Central Station at Madras and passes through Chingleput, North Arcot, and the Deccan Districts to Raichūr, whence the Great Indian Peninsula Railway continues the route to Bombay. The third runs south-west through some of the southern Districts, and thence across the Western Ghāts by way of the Pālghāt Gap to the west coast. An extension to Mangalore is under construction.

There are several branches from these three lines, among them being that to Bangalore, the metre-gauge branch from Shoranūr to Ernākulam (65 miles) belonging to the Cochin State, and the Nīlgiri rack railway to Coonoor (17 miles) with an extension to Ootacamund under construction. From the section of the East Coast line worked by the Bengal-Nāgpur Railway (which is 213 miles in length) runs the Parlākimedi light railway (25 miles, 2 feet 6 inches gauge) belonging to the Rājā of the *zamīndāri* of that name. The total length of the system worked by the Madras Railway was 839 miles in 1891, 1,489 miles in 1904, and 1,593 miles in 1906. The Madras Railway proper (900 miles) is one of the old Company lines working under a state guarantee of 5 per cent. The deficit in earnings made good by Government up to the present amounts to over ten millions sterling. Government determined the contract with the Company in 1907.

The South Indian Railway, a state-owned metre-gauge line which is worked by a company, runs from the Egmore terminus in Madras to the port of Tuticorin, whence steamers ply, in connexion with the mail trains, to Colombo, and so place Madras in communication with the ocean liners which touch there. The line has numerous branches. The longest of these is that which goes from Villupuram to meet the Southern Mahratta Railway at Dharmavaram. Others are that from

Villupuram to Pondicherry, of which 8 miles are the property of the French Government; that from Māyavaram to Arantāngi (99 miles), belonging to the Tanjore District board; and that from Tinnevelly to Quilon, of which 58 miles belong to the Travancore State. The total length of the line open was 909 miles in 1891, 1,353 miles in 1904, and 1,364 miles in 1906.

The Southern Mahratta Railway, most of which lies within the Bombay Presidency, owns 545 miles of line in Madras. The most important section is the line from Bezwāda to Guntakal, which connects the rich deltas of the Kistna and Godāvari with the infertile Deccan. From Guntakal the railway also runs westward through Bellary to the Bombay frontier, and thence to Hubli; and southwards through Dharmavaram to the limits of the Mysore State and on to Bangalore.

In the Presidency as a whole there were 2,108 miles of line open in 1891, and 3,545 miles in 1904, of which 1,623 were on the standard gauge, 1,897 on the metre-gauge, and 25 on the 2 feet 6 inches gauge. There was thus in 1904 one mile of railway to every 43 square miles of area, including Feudatory States.

Among projected lines are that from Raipur in the Central Provinces to Vizagapatam (359 miles), which would provide an outlet to the coast for the produce of those Provinces; the extension of the South Indian Railway across a tidal channel to the island of Pāmban (Rāmeswaram), where it is in contemplation to make a port for ocean-going vessels; and several local lines which some of the District boards propose to encourage by guaranteeing the interest on their cost from the proceeds of a special cess levied under the Local Boards Act.

The railways have influenced many matters, but few so greatly as famine and prices. By facilitating the rapid movement of grain, they prevent local failures of crop from causing acute distress. In the famine of 1876–8 one of the greatest difficulties with which the local officers had to contend was the physical impossibility of importing food in sufficient quantities to the distressed areas; bullock-carts were the only means of transport and there was no fodder for the bullocks. The grain market is now extremely sensitive, and where the harvest fails supplies quickly pour in by rail from elsewhere. Some of the railways of the Presidency were primarily constructed in order that their influence might in this way check the worst effects of any failure of rain.

While the railways thus sometimes enable the ryots of fortunate Districts to sell at a good profit the surplus grain which would otherwise glut the market, they likewise operate to equalize rates so that the exceedingly high prices which made fortunes in special localities in days gone by are now unknown. They probably, also, have checked

the former habit of storing in pits the unmarketable surplus grain of the fat harvests as a reserve against the lean years of the future. They have greatly lowered the cost in the inland Districts of all foreign articles imported at the seaports, and of the salt which is made in the various factories along the coast. The great temples have profited by the railways, attendance at festivals being usually much larger than in the days when the long journey had to be performed painfully on foot.

The roads of the Presidency are almost all maintained by the District boards. A few which traverse hills, and so require professional care, are in charge of the department of Public Works. Statistics are appended :—

	District board roads.		D.P.W. roads.	
	Mileage.	Cost of upkeep.	Mileage.	Cost of upkeep.
		Rs.		Rs.
1891 . .	20,100	22,07,000	470	1,31,000
1901 . .	21,700	24,64,000	500	1,37,000
1903 . .	22,200	26,12,000	590	3,06,000

The chief lines of through communication are the northern trunk road from Madras to Calcutta, the southern to the Travancore frontier, and the western to Calicut. These and many of the other main lines were originally aligned in accordance with military needs. The construction of feeder roads to railways is a point which now receives much attention. The railways have indeed in some Districts changed the whole course of the old trade routes, roads on which there was once heavy traffic being now almost deserted. The bullock-carts are of an unusually good pattern, having strong spoked wheels five feet in diameter fitted with iron tires. The tread of these last is, however, so narrow that they quickly cut up a soft road. Passenger traffic on frequented routes is conducted in light two-wheeled covered carts with springs, known as *jatkas*, which are drawn by the small but hardy pony of the country.

The only public tramway at present running is the electric system in Madras City. This is 9 miles in length, works on the overhead trolly method, was purchased by the present company from the original proprietors for Rs. 12,96,000, earns over 4 per cent. on its capital, and carries annually six millions of passengers.

The chief navigable waterways in the Presidency are the canals in the deltas of the Godāvari (493 miles) and the Kistna (307 miles), and the Buckingham Canal (262 miles). All these are connected, and thus place Madras City in direct communication by water with the deltas. The delta canals were primarily designed as irrigation works,

and are closed for from one to three months every year for repairs. The annual traffic carried by them amounts to 15 million tons. The cost of construction of the Buckingham Canal was 90 lakhs; and though it carries $12\frac{1}{2}$ million tons of traffic annually its working results in a deficit, the expenses being Rs. 91,000 and the receipts Rs. 71,000.

On the Godāvari canals there are four Government steamers, and on those in the Kistna delta three. Along the coast the boats of the British India Steam Navigation Company touch periodically at Madras and other ports, and also run to Bombay, Colombo, Calcutta, and Rangoon.

Except on the canals already mentioned, on the Godāvari river, and on the rivers and backwaters of the West Coast, there is little inland navigation. On a few of the rivers coracles or circular boats made of hides stretched over a framework of bamboo are used for local traffic or at ferries.

The Presidency and its Feudatory States (except Travancore and Cochin, which have postal arrangements of their own) form with Coorg, Mysore, and a few post offices in Hyderābād a Postal Circle in charge of the Postmaster-General of Madras. The figures in Table VIII at the end of this article (p. 356) show the marked advance in postal business which has taken place during recent years.

Famine.

The causes of famine in India and the policy and methods adopted by the Government in combating it are described in chapter x of Volume III of this *Gazetteer*. In the Madras Presidency the only considerable tracts immune from the scourge are the West Coast—where, thanks to the Western Ghāts, the rain seldom or never fails—and the deltas and other areas which are irrigated by the great rivers which rise in that range. The relative importance to the cultivator of the two chief rain-bearing currents—the south-west and the north-east monsoons—differs in different areas according to agricultural practice. In the Deccan, for example, it is the custom to sow the greater part of the food-grains on 'dry' land with the light rains of the former, and if this fails twice in succession scarcity is certain. In the south, on the other hand, where food-crops are largely grown on 'wet' land with water from artificial reservoirs which should be filled by the north-east monsoon, it is the failure of this latter current which is most keenly felt.

Of the earlier scarcities in Southern India there is little exact information. The records of the Madura Jesuit Mission contain accounts of famines which occurred in 1648, 1659–62, 1677, and 1709–20. In 1633 the Masulipatam factors wrote home that 'the living were eating up the dead, and men durst scarcely travel in the country for fear they should be killed and eaten.' In 1647 the inhabitants of Fort St. George were feeding on carrion beef begged

from the neighbouring Musalmān camp, and were sending piteous appeals for provisions to Masulipatam. Between 1729 and 1733 a famine following persistent neglect of the irrigation tanks drove prices up threefold. In 1782–3 Haidar Alī's devastations produced severe distress in Madras city, and for several weeks 1,200 to 1,500 dead bodies were daily collected in the streets and buried in great trenches outside the walls.

Other famines and scarcities occurred during the years, and were worst in the Districts, set out below[1]:—

1791–2. Ganjām, Vizagapatam, and Masulipatam.
1806–7. Nellore, North Arcot, and Chingleput, and less severely in the Deccan Districts and South Arcot.
1823–4. Deccan Districts, Vizagapatam, Guntūr, Nellore, North and South Arcot, Madras, and Salem.
1832–4. ('The Guntūr Famine') Guntūr, Nellore, Masulipatam, Cuddapah, Bellary, and North Arcot.
1853–4. Bellary.
1865–6. Ganjām, Bellary, North Arcot, and Madura.
1876–8. ('The Great Famine') Deccan Districts, Nellore, Chingleput, Salem, and Coimbatore.
1884–5. Bellary and Anantapur.
1888–9. Ganjām.
1891–2. Deccan Districts, Nellore, Chingleput, North Arcot, Salem, Coimbatore, and Tinnevelly.
1896–7. Deccan Districts, Ganjām, Vizagapatam, and part of Godāvari.
1899–1900. Deccan Districts and the parts of Kistna and Nellore adjoining them.
1901. Parts of Cuddapah, Anantapur, Chingleput, and North Arcot.

The list shows that the four Deccan Districts—Cuddapah, Kurnool, Bellary, and Anantapur—where the rainfall is light, the soil usually infertile, and large irrigation works are few, have suffered more consistently than any others, though Nellore is not far behind them in this melancholy precedence.

By far the most disastrous of all these visitations were the Guntūr famine of 1832–4 and the great famine of 1876–8. In the former, it was calculated that of the 500,000 people in the old Guntūr District 150,000 died, and the loss of revenue, excluding the sums spent upon relief, was 52 lakhs. The latter lasted twenty-two months, affected

[1] For particulars of those prior to 1865–6 see Mr. Dalyell's memorandum on the famine of that year. For the others, down to that of 1896–7, see the Reports of the Famine Commissions of 1880 and 1898.

fourteen of the twenty-one Districts of the Presidency, is calculated to have caused the death of $3\frac{1}{2}$ millions of people, and cost the state 630 lakhs in direct expenditure, besides 191 lakhs in loss of revenue. In one week in September, 1877, more than $2\frac{1}{4}$ millions were in receipt of relief, of whom 700,000 were on works. Even in 1901, twenty-five years later, the population of Cuddapah and Kurnool continued to be less than it was before this visitation. In the famine of 1891–2 the direct expenditure on relief and works was 18 lakhs, and the remissions of revenue were 40 lakhs in excess of the normal. In the famine of 1896–7, the amount spent on relief was 86 lakhs, and remissions of revenue were granted to the amount of 24 lakhs.

The history of these famines is the history of progress and improvement effected in the methods of fighting them. Relief works were first opened in 1791–2. In 1806–7 the principle of moderation in the collection of land revenue during scarcity was laid down. After that date the Government no longer attempted the useless and dangerous interference with the grain market which had previously been the practice. In 1865–6 private relief made its first organized effort, $2\frac{3}{4}$ lakhs being subscribed locally. In 1876–8 the railways played an important part in the distribution of grain to affected tracts, attempts were made to insist on a proper testing of those who applied for relief, weavers received advances to be repaid in woven cloth instead of being required to face the unaccustomed labour of the ordinary relief works, and large advances were made for the purchase of seed and the repair and construction of wells. In the distress of 1891–2 the methods of relief had become so far systematized that, excluding cholera, the death-rate was not much in excess of the normal; and even in the much severer famine of 1896–7 the Famine Commission of 1898 found that 'the loss of life due to the indirect results of privation was remarkably small.' In this last distress the complicated machinery necessary to the system of relieving weavers by advances was so greatly improved that, in the subsequent scarcities of 1899–1900 and 1901, more than 90 per cent. of the advances made were recouped by the sale of the cloths woven, and the cost of relief of this class was thus reduced to a minimum.

As long as the people continue to depend mainly upon the land, the cultivation of which itself depends upon a capricious rainfall, so long will continuously deficient monsoons result in famine; but the elaborate system of agricultural intelligence in force, and the weekly reports of rainfall and prices and of the state of the pasture, crops, and irrigation supplies, prevent adverse seasons from taking the authorities by surprise, while the rules regarding the maintenance of lists of schemes suited for relief works and the codes of instruction to all officers concerned ensure that they shall not be found unprepared. But even though these safe-

guards are now sufficient to prevent deaths from actual starvation, ordinary diseases find easy victims in those who are weakened by privation, and census statistics clearly show that distress occasions a reduction in the birth-rate by its effect upon the reproductive powers. Human efforts cannot make the monsoons less irregular, but they can provide the people with occupations that will render them less at the mercy of this irregularity; and the strongest protection against famine would be the exploitation by private capital of the natural resources of the Presidency, and the reduction that would follow in the present overwhelming preponderance of those who depend directly or indirectly for their daily bread upon the land.

Administration.

The various branches of the administration of the Presidency are in the immediate charge of a number of departments. Each is usually under the control of the head of the department, to whom are entrusted considerable powers of independent action. Thus the head of the Police department is the Inspector-General of Police. Heads of departments correspond with the Government through the Secretariat. This is divided into a number of branches, controlled by different secretaries, each of which deals with the work of certain specified departments. Finally, each branch of the Secretariat is under the control of one of the three Members of the Government, and submits for his orders all questions connected with the matters with which it deals. In this way executive control is greatly decentralized, while ultimate authority is exercised through a branch of the Secretariat and by a Member of the Government, both possessing special knowledge of the needs and circumstances of each department.

The three Members of the Government are the Governor and his Council of two members of the Indian Civil Service, all of whom are appointed by the Crown. They constitute the Local Government, in which is vested the administration of the Presidency. Though each of them has charge of certain specified departments and their individual orders issue as those of the Governor-in-Council, certain classes of subjects and all matters of importance are disposed of by two Members, or by the whole Council, in consultation.

The Secretariat is divided into the following branches:—Financial, Political, Judicial, Public, Ecclesiastical, Marine, and Pension, under the management of the Chief Secretary to Government; Revenue, under the Revenue Secretary; Local, Municipal, Educational, and Legislative, under a third secretary; and the three branches of Public Works—Roads and Buildings, Irrigation, and Railway—each under a secretary of its own.

Legislative and Judicial administration are referred to in more detail below. Matters connected with Revenue administration are

especially complex and heavy; the Government is relieved of detailed control over a large proportion of them by the Board of Revenue, a body which has the same authority over Collectors and other revenue officers as is possessed by Commissioners of Divisions in other Provinces. Letters on matters relating to revenue administration are usually addressed to the Board instead of to the Government. It consists of four Members, of whom two usually control matters connected directly with the Land Revenue (including Forests and *ināms*), a third has charge of Revenue Settlement, Land Records, and Agriculture, and the fourth supervises the Salt, Abkāri, and Separate (Customs, Stamps, Income tax, &c.) Revenue. The orders of each Member issue as those of the whole Board, but matters of importance are decided by two, three, or all four of the Members in consultation. The Board is further a Court of Wards, with legal power to administer landed estates, the heirs of proprietors of which are incapacitated from managing them themselves.

For almost all purposes the unit of Provincial administration is the District or Collectorate. The Presidency is divided into 22[1] such Districts, statistical particulars for each of which are given in Table I at the end of this article (p. 350). Excluding the exceptional cases of Madras City, the Nīlgiris, and Anjengo, a District contains on an average 7,000 square miles and 1,879,000 inhabitants. The chief executive and magisterial officer in each is called the Collector and Magistrate, while the chief judicial officer is the District and Sessions Judge. The powers and duties of the Collector-Magistrate embrace almost every subject which comes within the functions of a civilized government; and he is not only, as his title implies, responsible for the collection of revenue from the land, the customs, the salt and excise monopolies, &c., &c., and for the supervision of the magistrates within his charge, but he has also to control the working of the various departments which deal with forests, irrigation, police, jails, education, sanitation, hospitals, vaccination, roads, and so forth.

Each District is arranged into three or four subdivisions, under the immediate charge, subject to the Collector's control, of divisional officers, the majority of whom are Deputy-Collectors recruited in India; and these are again divided into *tāluks* in charge of native *tahsīldārs*, assisted, when the work is specially heavy, by deputy-*tahsīldārs*. *Tāluks* are the units of District administration, just as Districts are those of Provincial administration. They are divided into *firkas*, in each of which a revenue inspector is in immediate charge of the details of revenue work. The ultimate unit for all fiscal and administrative purposes is the village. Each of these has a headman, who is responsible for the due collection of the revenue and possesses petty judicial

[1] As already stated on p. 236, this number has recently been raised to 24.

powers; an accountant, who maintains its records; and a varying number of menial servants under the orders of these two officers. Succession to all village offices is usually hereditary, and the powers and duties of their incumbents have undergone but little change since the earliest days of which history gives any account. There are 84 subdivisions, 231 *tāluks*, and 657 *firkas* in the Presidency. The average area and population of a subdivision are 1,687 square miles and 454,752 inhabitants, and of a *tāluk* 613 square miles and 165,364 inhabitants. The total number of villages is about 55,000.

The staff of each District, with two or three exceptions, includes (in addition to the Collector, the Judge, and the divisional officers) an Executive Engineer, a District Forest officer, a District Medical and Sanitary officer, and a Superintendent of police, all of whom are generally Europeans. They are immediately subordinate to the heads of the various departments to which they belong, and assist the Collector in the administration of those departments. There is further a Local Fund Engineer (see Local and Municipal Government, p. 331), who is in immediate charge of the roads, bridges, and smaller public buildings of the District.

Five Native States have direct political relations with the Government of Madras. These are TRAVANCORE, COCHIN, PUDUKKOTTAI, BANGANAPALLE, and SANDŪR. Their area and population are given in Table I (p. 350). The Mahārājā of Travancore and the Rājās of Cochin and Pudukkottai are entitled to salutes of 19, 17, and 11 guns respectively. All three maintain a limited number of troops. Travancore and Cochin have their own postal services. The former also mints its own coinage.

Travancore and Cochin were recognized principalities before the British were supreme in the South, and are held under treaties made originally with the Company. Possession of the other three States has been confirmed by grants. Pudukkottai was given to an ancestor of the present Rājā in return for services to the British in the wars of the eighteenth century. Banganapalle was a feudal estate at the time when it was ceded by the Nizām to the Company, and its position was continued. Sandūr was originally feudatory to the Marāthās, and its chief was allowed to retain the State in consideration of his family's long possession. The treaties require Travancore to pay a tribute of 8 lakhs and Cochin a tribute of 2 lakhs. Travancore and Cochin lie next one another on the west coast, and affairs in them are controlled by the Madras Government through a British Resident for both. Pudukkottai lies south of Trichinopoly District, while Banganapalle and Sandūr are in the Deccan. The Government Political Agent in each of these three latter States is the Collector of the adjoining District: namely, Trichinopoly, Kurnool, and Bellary. The previous approval

of the Madras Government is obtained by all five States to any legislation or legal regulation they propose to enact or adopt; the Resident in Travancore and Cochin and the three Political Agents are kept informed of, and invited to advise regarding, all matters of importance arising within them; and each State makes an annual report upon all branches of its administration, which is forwarded to the Resident (or the Political Agent) and by him submitted to the Government with his remarks and suggestions.

Legislation and justice.

The laws in force in the Presidency comprise such of the enactments of Parliament and of the Governor-General-in-Council as apply to it, those of the local Regulations made prior to 1834 which are still unrepealed, and the measures passed from time to time by the local Legislative Council. Under the provisions of the Indian Councils Acts, 1861 and 1892, this Council consists of the Governor and the two members of Council already mentioned, the Advocate-General, and not less than eight nor more than twenty additional members nominated by the Governor. Regulations made under the Indian Councils Act, 1892, provide that of these twenty members not more than nine shall be officials, and that, of the remaining eleven seats thus reserved for non-officials, nominations shall be made by the Governor to seven on the recommendation of (*a*) the Municipal Commissioners of Madras City, (*b*) the Senate of the University, (*c*) the Chamber of Commerce, (*d*) the Municipalities and (*e*) the District Boards of the northern Districts, and (*f*) the Municipalities and (*g*) the District Boards of the southern Districts. These regulations further provide that, to the remaining four seats, the Governor may nominate non-officials in such manner as shall in his opinion secure a fair representation of the different classes of the community, and that one of them shall ordinarily be held by a *zamīndār* paying to Government an annual land tax of not less than Rs. 20,000. Subject to certain rules and restrictions, the members of the Legislative Council may put interpellations to the Government regarding matters under its control, and may discuss the annual financial statement. Acts passed by this Council require the express approval of the Governor and also of the Governor-General, and even if so approved are subject to disallowance by the Crown.

The more important of the Acts passed by the local Legislative Council during the past twenty years are the Forest Act (V of 1882), which is the foundation of the whole forest policy of the Presidency; the three Acts which control Local and Municipal Government, namely, the District Municipalities Act (IV of 1884), the Local Boards Act (V of 1884), with the subsequent Acts amending them, and the Madras City Municipal Act, 1904; the Abkāri Act (I of 1886) and the Salt Act (IV of 1889), which are the basis of the present policy in

these two branches of the administration; the Madras Court of Wards Act, 1902; and the Madras Impartible Estates Act, 1904.

Civil justice is administered in Madras City by three civil courts: namely, the Small Cause Court with jurisdiction in suits up to Rs. 2,000 in value, the City Civil Court with jurisdiction up to Rs. 2,500 in suits which are not cognizable by the Small Cause Court, and the High Court. The High Court, consisting of a Chief Justice and five Puisne Judges appointed by the Crown, has original jurisdiction over all suits arising within Madras City except those which are less than Rs. 100 in value and are triable by the Small Cause Court; powers of appeal and control over all courts within the Presidency; and, under its letters patent, insolvency, testamentary, admiralty, and matrimonial jurisdiction.

Outside Madras City, the civil courts are of five classes: namely, Village, Revenue, District Munsifs', Subordinate Judges', and District Courts. The ordinary courts have, however, no jurisdiction in the Agency tracts in the three northern Districts, judicial functions in these being exercised by the Revenue officers, subject to appeal to the High Court from decrees in original suits passed by the Agent to the Governor, to certain powers of revision by the same tribunal, and to ultimate appeal to the Governor-in-Council.

Village Courts are presided over either by village headmen or by benches of village elders, and ordinarily have jurisdiction up to Rs. 20; their decrees are subject to revision by District Munsifs. Revenue Courts are held by divisional officers to try summarily questions regarding agricultural tenancy in proprietary landed estates, and an appeal from their decisions lies to the District Court and ultimately to the High Court. In 1904 first appeals were filed against 30 per cent. of their appealable decrees, 51 per cent. of which were successful. District Munsifs hear the majority of the suits in the Districts. They have ordinary jurisdiction up to Rs. 2,500 and Small Cause jurisdiction up to Rs. 50, or, if specially so empowered, up to Rs. 200. Appeals from their decisions lie to the District Courts. In 1904 appeals were preferred in the case of 12 per cent. of their appealable decrees, of which 37 per cent. were allowed. Subordinate Judges are practically assistants to the District Judges. They are appointed where the District Courts are heavily worked, have jurisdiction to the same amount as District Judges, and usually try such suits and appeals as those judges may transfer to their files, or they are specially empowered to hear appeals from certain of the Munsifs' Courts. They also have Small Cause jurisdiction up to Rs. 500. District Munsifs and Subordinate Judges are nearly all natives of the country.

There is a District Court in every District except Anantapur and the Nīlgiris (which are subject to the District Courts of Bellary and Coim-

batore respectively), and in Malābar there are two. They are usually presided over by members of the Indian Civil Service, and have original jurisdiction in suits above Rs. 2,500 in value and appellate powers in suits up to Rs. 5,000, appeals in cases above this value lying to the High Court. In certain cases an appeal from the High Court's original and appellate orders lies to the Judicial Committee of the Privy Council. District Judges have general control, subject to rules prescribed by the High Court, over courts of all grades within the District.

In 1904, including Agency Courts, there were 5,236 Village, 63 Revenue, 142 District Munsifs', 24 Subordinate Judges', and 23 District Courts. Table IX at the end of this article (p. 356) gives particulars of the suits tried by them and by the courts in Madras City during the past twenty years. Litigation varies in amount directly with the prosperity of the people. The richer Districts contribute a larger share of the total than the poorer ones, and this total increases when the seasons are favourable and money is plentiful.

Criminal justice is administered by courts of various powers. Offences under the Penal Code are classified according to their gravity as sessions cases, or as triable by (*a*) a first-class, (*b*) a second-class, or (*c*) any magistrate. Sessions cases include all the graver forms of crime. They are first inquired into by a magistrate and then, if a prima facie case is made out, are committed for trial to a Court of Session. First-class magistrates can award imprisonment for two years and a fine up to Rs. 1,000, and also sentences of whipping; second-class magistrates, imprisonment for six months and a fine of Rs. 200, and also whipping when specially empowered; and third-class magistrates, imprisonment for one month and a fine of Rs. 50.

In Madras City, the four Presidency Magistrates have first-class powers subject to appeal to the High Court, and the High Court is the Court of Session.

Outside Madras City there are Village, Bench, Cantonment, Special, Subordinate, Subdivisional, and District Magistrates, and Sessions Judges. Village magistrates are the village headmen, who under special enactments have power to try petty cases of abuse, assault, and theft, and to imprison for twelve hours or to put offenders of the lower classes into the stocks for six hours. The Cantonment Magistrates are usually Station Staff officers who have third-class powers within the limits of their cantonment, but at St. Thomas's Mount there is a whole-time Cantonment Magistrate with first-class powers. Benches of Honorary Magistrates, presided over by an official Subordinate Magistrate and usually possessing second-class powers, have been constituted in some of the larger towns to try offences against certain local and municipal laws. Special Magistrates are generally officials of executive

departments who have been invested with powers (usually third-class) for the trial of cases of similar kinds in some of the smaller towns. The Subordinate Magistrates are officials with either second or third-class powers, and they hear the majority of the minor cases in the Districts. There is usually one of them at the head-quarters of each *tāluk*. *Tahsīldārs* have second-class powers *ex officio*, and in the smaller *tāluks* they exercise these as well as their revenue powers. Elsewhere separate Sub-magistrates are appointed to relieve them of the duty of hearing criminal cases. Deputy-*tahsīldārs* are generally Subordinate Magistrates within their charges. All these, except Cantonment Magistrates, are usually natives of the country. The Subdivisional Magistrates are the divisional officers. They usually have first-class powers, and appeals from the Subordinate Magistrates within their charges lie to them. They are also, if Europeans, usually Justices of the Peace, and as such are the lowest courts which can try a European British subject. District Magistrates have similarly first-class powers and are Justices of the Peace. They do little actual magisterial work, but exercise control over all the subordinate criminal courts within their Districts.

The Sessions Judges are the same persons as the District Judges. There are thus, as before, one in every District except Anantapur and the Nīlgiris, and two in Malabar. Where the work is unusually heavy, Additional and Assistant Sessions Judges are appointed. In the Agency tracts Collectors have the powers of Sessions Judges. Sessions Courts try sessions cases committed to them and have power, subject to appeal to the High Court, to pass the maximum sentences allowed by the Penal Code, except that sentences of death require the confirmation of the High Court. Sessions trials are heard either by a jury or with the aid of assessors. In the Agency tracts, where the jury system is not in force, the latter procedure is always adopted. Sessions Courts have also appellate powers over the orders of the first-class magistrates within the District.

In 1904 there were 4,370 Village, 58 Bench, 4 Cantonment, 47 Special, 471 Subordinate, 91 Subdivisional, and 23 District Magistrates, and (including Additional and Assistant Sessions Judges) 22 Sessions Judges. Eight per cent. of the persons convicted by subordinate courts filed appeals to first-class magistrates, 38 per cent. of them being successful; and 26 per cent. of those sentenced by first-class magistrates appealed to Sessions Courts, 29 per cent. of them securing a reversal of their convictions. Statistics of the persons tried by all the courts of the Presidency taken together are shown in Table IX at the end of this article (p. 356). Unfavourable seasons usually produce an increase of crime.

Under the Indian Registration Act (III of 1877), certain classes of documents must be registered to obtain validity in a court of law.

Registration of others is not compulsory, but the law provides that priority in effect will be given to a registered document over one that is unregistered. Offices have been established all over the Presidency in which documents are registered, the operation consisting in copying them at length and indexing them in a specified manner. The figures shown below give the offices open and the documents registered in them in recent years, and it will be seen that the people are availing themselves in increasing numbers of the safeguard thus provided :—

	Average, 1881–90.	Average, 1891–1900.	1901.	1904.
Number of offices .	331	412	438	450
Documents registered	550,740	842,279	995,764	986,632

Finance.

The financial system under the rulers who were the immediate predecessors of the Company in the greater part of the Presidency, the Sūbahdār of the Deccan and his subordinate the Nawāb of Arcot, was probably in practice the worst that the country had ever known. Its principles and the sources upon which its revenue depended were much the same as in the days of the Vijayanagar kings from whom the Musalmāns had taken the country; and, as is shown by inscriptions recently deciphered, the Vijayanagar rulers, whether consciously or not, had followed in many points the system originated as far back as the eleventh century by the ancient Cholas. Under Vijayanagar, the country was divided into provinces in the charge of governors, who were bound to provide a fixed contribution to the royal exchequer, maintain a certain number of troops, and police their charges. Any revenue which remained after these duties had been fulfilled remained with the provincial governor. This system of sub-renting the collection of the state demand persisted in varying forms for centuries afterwards, and in one or two instances continues even to the present time.

All history (and notably the letters of the Jesuits of those days) shows that under Vijayanagar, and still more under the Naik dynasty of Madura and the Marāthās of Tanjore (who held much of the country between the fall of Vijayanagar and the consolidation of the Musalmān dominion), and most of all under the Musalmāns themselves, the collection of the various items of revenue was accompanied by merciless oppression of the common people.

Under the Musalmāns, the right of collection was farmed out to the highest bidder, who invariably extorted far more than his dues. The chief item of revenue was the land assessment; and though in theory the state dues were usually one-half of the gross produce paid in kind plus the fees due to the village officers (in itself an excessive demand), in practice almost the whole crop was often seized, the cultivators being

left only with what they could conceal or make away with. The farmers of the land customs (another considerable item of revenue) established stations, often at intervals of only 10 miles, along the roads, and exacted dues on all merchandise, even on grain, on any principles they chose. Duties were collected on salt and on imports and exports; the monopoly of the sale of spirituous liquors, tobacco, and betel was leased out; and taxes were levied on every kind of trade, craft, and profession, and even sometimes on mere labourers. In each of these cases the unscrupulous renters wrung every anna possible from those who were placed in their power.

A general history of the finances of India since the British occupation has been given in chap. vi of Vol. IV of this *Gazetteer*. Madras participated in Lord Mayo's decentralization scheme of 1870, by which the expenditure under certain heads was for the first time left to the control of Local Governments and met by a fixed grant from Imperial funds; but Sir John Strachey's extension of that system in 1877 was not at once introduced into the Presidency, as its resources had been too severely strained by the great famine of that year. The pressure was, however, only temporary, and in the decade ending 1882 the Provincial revenues—leaving out of account the enhanced grants from Imperial funds—increased by 21 lakhs.

In the Provincial contract made in 1882–3, the receipts from certain departments, the management of which was more particularly under the control of the Local Government—namely, Excise, Assessed Taxes, Stamps, Registration, and Forests—were divided equally between Imperial and Provincial funds. The income from Land Revenue, Customs, and Salt was reserved for Imperial, and the expenditure on Land Revenue and General Administration was debited to Provincial funds. During the currency of this contract the receipts from the heads thus equally divided increased greatly. Excise profited from the reorganization of the administration of the department; Assessed Taxes from the introduction of the Income-tax Act; Stamps from changes in the system of payment for copies; Registration from the extension of the department; and Forests from the growth of the policy of conservation inaugurated by the Forest Act of 1882. This last item was eventually made over entirely to Provincial, instead of being divided. On the other hand, improvements in administration enhanced the expenditure under Land Revenue, and famine occasioned a large outlay.

In the contract of 1887–92 one-fourth of the receipts from Land Revenue and three-fourths of those from Stamps were apportioned to Provincial funds. Excise revenue had greatly expanded, to the considerable benefit of Provincial funds; and three-fourths of it, instead of one-half as before, was now made over to Imperial funds. During the course of the contract it still further increased. Forests and

Registration also continued to bring in a large revenue. Expenditure advanced under the heads Law and Justice and Police, in consequence of improvements in administration; under Irrigation and Civil Public Works, owing to greater activity in those departments; and under Famine, on account of the distress of 1891–2.

In the third contract (1892–7) the growing item of Forest revenue, which had previously been Provincial, was equally divided between Imperial and Provincial funds, and one-fourth of the Salt receipts was now apportioned to the latter. During this period the recovery in the seasons and the resettlement of certain Districts enhanced the receipts under Land Revenue; but the rise was largely counterbalanced by an increase in the pay of revenue inspectors and other administrative improvements. The extension of the tree-tax system (see under Miscellaneous Revenue, p. 328) and an enhancement of the rate of excise duty resulted in still further advances under Excise. On the other hand, expenditure under Law and Justice rose in consequence of the appointment of stationary Sub-magistrates to relieve the overworked *tahsīldārs*, the regrading of the District Munsifs, and other improvements; the charges under Forests, Police, Education, and Medical were similarly increased by the reorganization or strengthening of these departments; and the outlay under Irrigation and Civil Public Works was again enhanced by more than normal expenditure on these two items.

In the contract which began in 1897 only minor changes were made in the existing apportionment of the various items of revenue between Imperial and Provincial funds. Land Revenue declined owing to the famine of 1897 and the remissions necessitated by the scarcity of 1901, while expenditure under this head rose owing to the outlay on relief works, the reorganization of the *tahsīldārs'* establishments, and the expansion of survey operations. Excise receipts suffered in consequence of bad seasons and plague, and the latter occasioned increased outlay under Medical. During the five years ending 1901–2 plague measures cost 11 lakhs, and the Government of India made special grants to Provincial funds to meet part of this expenditure. The Registration receipts once more advanced, but the charges under Police were raised by the reorganization of the special force on railways. With the help of grants from Imperial funds, the expenditure on Irrigation and Civil Works was maintained at even more than its former level; and large grants, to restore equilibrium in the Provincial accounts, for Education and for other purposes, were made from the same source in 1902–3 and 1903–4.

The system of contracts for limited terms was abolished in 1904; and an arrangement has been entered into for an unspecified term, under which the Local Government will have a more direct interest

than before in extending the capabilities of the growing heads of revenue in the Presidency.

Tables X and XA at the end of this article (pp. 357, 358) give the Provincial revenue and expenditure under the principal heads. It will be seen that in 1903–4 14,73·50 lakhs of revenue was raised, of which 424·84 lakhs was credited to Provincial funds, and the remainder handed over to Imperial. The largest items among the receipts were Land Revenue (606 lakhs), Salt (195 lakhs), and Excise (177 lakhs), while the chief heads of expenditure were the maintenance of the Revenue, Judicial, and Police departments, and the outlay upon Irrigation and other Public Works.

Land revenue.

By immemorial law and custom the ruling power is entitled to a share (*melvāram* or 'superior share') in the produce of the land, the remainder being the ryot's share or *kudivāram*. Subject to the payment of a stated proportion of the produce, the ryot's right of hereditary occupancy of the land for agriculture is complete, and ordinarily he has an unrestricted power of alienation. The state, however, does not always take its dues direct, but has in many cases transferred its rights of collection to intermediaries such as *zamīndārs*, who levy the state share, retain a portion for themselves, and pay the remainder to Government. Historically and theoretically, therefore, the ryot under any system in this Presidency is entitled to the permanent possession of his holding, subject only to the payment of the *melvāram*. Owing, however, to several causes, claims at variance with strict theory have arisen in some of the tracts where the state dues are collected by intermediaries, as will be seen below.

The land revenue system consequently has two main divisions: namely, *ryotwāri*, in which the state maintains its direct relations with the ryot; and *zamīndāri* (including *jāgīrs* and *ināms*), or the system of intermediaries and transferees of interest between the state and the cultivator. It is historically an evolution from the systems which existed, in so far as anarchy permitted any system to exist, in the several parts of the Presidency shortly before its occupation by the British. The northern Districts were chiefly held by *zamīndārs*, and in the central and southern Districts large tracts were also occupied by feudal chieftains of various classes; these formed the intermediaries between the state and the cultivator. But over vast areas there were no such middlemen, save that the state dealt in great measure not with individual ryots but with villages or their headmen under the joint settlement system, and that the revenue collection was frequently farmed out to temporary renters; this method of farming the collections was common also in the *zamīndāris*. Of the ancient estates, many have survived as the *zamīndāris* of the present day, but in most

instances the feudal chiefs resisted the introduction of the British peace, and were therefore dispossessed. The estates artificially formed to introduce the Bengal Permanent Settlement mostly failed; a subsequent attempt to create a system of permanent village estates with some form of renters, either joint or individual, likewise failed; and the *ryotwāri* system, suggested to a large extent by former methods on certain areas, gradually absorbed the others. The system as first conceived by Read in Salem at the end of the eighteenth century was modified in both principle and detail on its reintroduction from 1818, after the failure of the *zamīndāri* and renting systems; and the distinctive system of the Presidency is now *ryotwāri*.

The basis of this system is the division of the whole area into fields by a cadastral survey, each field being valued at a fixed rate per acre and the assessment settled thereon. A holding is one or more of such fields or of their recognized subdivisions. The registered occupant of each field deals directly with Government; and so long as he pays the assessment he is entitled to hold the land for ever and cannot be ejected by Government, though he himself may, in any year, increase or diminish his holding or entirely abandon it; should the land be required for a public purpose, it must be bought at 15 per cent. above its full market value. Inheritance, transfer, mortgage, sale, and lease are without restriction; private improvements involve no addition, either present or future, to the assessment. Waste land may be taken up by any person, under the rules laid down, and once granted to a ryot it is his as long as he pleases.

The present system has been much modified from the original form evolved by Read, Munro, and others. A ryot is now responsible only for his own dues; under Read's system all resident cultivators in a village were jointly bound for any deficit. Remission was expressly excluded from Read's system; it became, however, an immediate necessity, and is now regulated by standing orders. Ryots were nominally allowed to relinquish land at pleasure, but the permission was hedged round with restrictions which practically negatived the rule and in fact forced undesired land into holdings; relinquishment is now absolutely free. For more than fifty years private improvements, such as wells, involved additional assessment; this is utterly abolished. Valuable crops were formerly charged much higher rates; the assessment is now solely on the land, and the ryot grows what crops he pleases without extra charge. At first the idea of making assessments permanent was tentatively in the minds of some officers; but permanency in the conditions then existing was impossible, and the idea of absolute permanency was excluded from the revised system of 1818, under which the settlements are avowedly temporary, that is, fixed only for a term.

The original basis of the assessment is a share of the crop. By ancient Hindu law the sovereign was entitled to a portion (usually one-sixth to one-fourth) of the gross produce, but the practice of many centuries disregarded the theoretical share. Inscriptions of the eleventh century in Tanjore show that the Chola kings took half the produce, a share which was increased to 60 per cent. and upwards in later years. When the British arrived one-half to three-fifths was found to be the generally accepted proportion from irrigated lands, and about two-fifths from unirrigated; on valuable crops the share was smaller, but the cash assessment greater. This enormous demand was further enhanced by the exactions and oppressions of the temporary renters, of the lawless subordinates of the many feudal chiefs, and of the revenue officers, so that the revenue system was mere anarchy, and the ryot could live only by evasion and fraud. The British assumed the correctness of the demand, and though they reduced oppression and confusion they also put some check on evasion. Consequently the assessments were far too high, and, till 1855, the practice was one of incessant and heavy but unsystematic reductions and remissions; prices also fell heavily, so that the assessments were ruining the ryots and restricting or even reducing cultivation.

In the few Districts where there had been a survey and valuation, the records had, by 1855, largely been lost or altered by fraud or otherwise; in many Districts where there had been none, 'the land revenue is based merely on the unchecked statements of the *karnam* [village accountant], and fraud, confusion, and oppression are general' (Government Order of 1855). In view, therefore, to reduce assessments, correct confusion, promote enterprise, and give security to the ryots, it was decided to survey the whole *ryotwāri* area and to base the assessments on the productive power of the soil, 30 per cent. of the gross being taken as the maximum demand; the grain valuation was to be permanent for fifty years, but the rate for commutation into cash was to alter every seven years according to prices. In 1864 it was finally settled that, to avoid pressure on the poorer lands, the assessment should not be based upon a share of the gross, but should be half the net produce and should be fixed in cash for thirty years. Since that date this has been the invariable rule.

Survey operations are described elsewhere. The whole *ryotwāri* and 'minor *inām*' area has now been divided into numbered, demarcated, and mapped fields: boundary disputes are consequently minimized, identification is easy, and transfers, with their registration, simple.

The settlement follows the survey. The officers in charge of the work carefully examine the economic history, resources, climate, and soils of the District, these last being classed as clay, loam, and sand of several sorts, according to productiveness, in the black and red classes. Soils

are also divided into 'wet,' i. e. irrigated, and 'dry' or unirrigated, but lands irrigated from purely private sources (e. g. wells) are classed and assessed as 'dry.' Certain food-staples are then selected as representative, and the average out-turn is ascertained by numerous measurements of the ryots' crops on the several soils; the experience of years now enables crop measurements to be dispensed with generally. The out-turns are then valued by a commutation rate, something—sometimes much—below the average of the prices of the previous twenty non-famine years; and from this valuation a deduction, varying round 15 per cent., is made for the difference between market and village prices, and another, usually from 20 to 25 per cent. on 'dry' lands but slightly less on 'wet' lands, for vicissitudes of season and unprofitable patches. From these results are deducted cultivation expenses, estimated according to soil; and the balance is the net produce, of which a nominal half (usually less) forms the assessment in its several rates, which are then applied to the respective soils. Further allowances, however, are made under the system of classifying villages and sources of irrigation, in which the economic deficiencies, position, &c., of the former and the character of the latter are taken into consideration. Finally, the rates are compared with existing rates and reduced if necessary. For second crops irrigated by Government water on 'wet' land a half or lower charge is payable, but for third crops or for second unirrigated crops, whether on 'wet' or 'dry' lands, there is no charge.

The particulars of the settlement are entered for each village in a register in the order of the field numbers; and from this the details of each ryot's holding and assessment are transcribed into a personal register, an extract from which forms the *patta* or personal account.

The new settlement has now been introduced into all Districts, but is still incomplete on the West Coast. In three Districts the initial settlement has expired and a resettlement has been made; in others resettlement is in progress or at hand.

As already stated, the leading idea of the new settlement was reduction and systematization, but owing to the doubling of prices in the next decade general reduction was unnecessary; on the other hand, notwithstanding this doubling of prices no increase was made in the assessment per acre up to 1898, except in Tanjore. The net effect of the initial settlements in nineteen Districts up to 1898 is that the prior assessments—heavily reduced from those of the early period—were raised from 329·6 to 357·1 lakhs, or by 8·4 per cent. But this includes the 8 per cent. increase in area discovered by the survey, while 12 lakhs out of the 27·5 lakhs of increase occurred in the rich delta of Tanjore alone. Resettlements completed by 1903 have resulted in a further increase of about 11 lakhs in the rich deltaic Districts of Godāvari and Kistna, and in Trichinopoly, where the initial settlement gave a reduction of 4 lakhs.

The rates number forty for 'wet' land and range from Rs. 14 to 12 annas per acre, the average charge being Rs. 5–9, for which Government supplies water; for 'dry' land (including gardens) they number thirty-four, ranging from Rs. 8 to 2 annas per acre: 'dry' rates above Rs. 3 are very rare, and the average assessment is R. 1. Prior to settlement 'wet' rates ran up to Rs. 35 per acre, and 'garden' rates (abolished in 1863, but now levied in South Kanara and Malabar) were several times higher than the 'dry' rates to which they were reduced. The average assessment per occupied area, excluding 'minor *ināms*,' is now Rs. 1·9, compared with Rs. 2·5 in 1855. This decrease is due partly to several reductions, such as that on garden lands, partly to the taking up of inferior soils in the expansion of holdings from 12·5 to 21·6 million acres. But during that period grain prices have doubled, so that while the incidence per acre has decreased by 25 per cent. the pressure has also lessened.

Two cesses (in addition to the irrigation cess and the railway cess already mentioned[1]) are also levied: one, at 1 anna per rupee of revenue ($6\frac{1}{4}$ per cent.), is expended locally in each District on roads, sanitation, and medical services, primary education, &c.; the other, at about 9 pies per rupee ($4\frac{11}{16}$ per cent.), is the village service cess, and is merely a substitution for the dues (*meras*) immemorially paid out of the harvest produce by the ryots to the village officers and servants. It is far less onerous to the ryots than the old *meras*, while the payees obtain a regular income without the numerous disputes and evasions of former days[2].

The original intention to reduce assessments led to very cautious calculation of out-turns, so that estimates are well below the mark, except perhaps in the lowest grades. Moreover, the valuation assumes that all crops are cheap food-grains only, and takes no cognizance of the vast quantities of far more valuable industrial and orchard produce, while second crops on 'dry' lands, and the numerous fruit trees scattered over the holdings, are not considered; the commutation rates are also lower than the prices generally current. Hence the value of the real gross produce is far above the nominal gross value. Including the West Coast Districts, but excluding all by-products from cattle, &c., the mere crop value in round figures is above 50 crores, while the assessment (including miscellaneous charges) is about 5 crores, or below one-tenth, and includes the whole charge for water supplied by Government to about 6 million acres. The share per acre, however, varies largely according to District, productiveness, &c. The assessment is, nominally, one-half of the net produce; but since, over vast areas, both 'wet' and

[1] See above, pp. 279 and 302.

[2] The village service cess was abolished in 1906, and the village establishments are now paid out of general revenues.

'dry' land are sub-leased at a half or larger share of the crop or at from twice to five or more times the assessment, it is clear that the nominal proportion is often a fourth and, on the richer lands, a sixth or even less of the net produce. On the poorest lands, however, which just return expenses, even in normal years, with but a small or moderate profit on stock, the assessment is as high as the land can reasonably bear.

Certain temporary deviations from the strict assessment are admitted in favour of the cultivators: e. g. land covered with jungle or noxious vegetation may be granted free or on progressive rates for twenty years, while land which has lain waste for ten years may be granted wholly free for the same term for the purpose of planting orchards and woods; increments at settlement, if considerable, are also introduced gradually.

In settling the assessment, a deduction of about 15 to 25 per cent. is made from the gross out-turn for vicissitudes of season, and this, which is more than equal to the full annual assessment, is held to cover losses in all ordinary seasons. For this reason and because the ryot is entitled in any year to relinquish any part of his holding, the assessment on all unirrigated land in occupation is payable in ordinary years, whether the land be cultivated or not. Remission is given only for waste or for the total or partial loss of crops on such land in exceptionally bad seasons and tracts. In such cases the Collector is authorized to suspend collections, to make general inquiries into the loss of crops, to divide the areas into blocks classed according to their several losses, and to recommend for each block its appropriate percentage remission on all unprotected fields within it (without differentiating between individuals or fields) on an established scale varying from full remission for a crop of one-sixth or less; no remission is given if a half-crop has been obtained. This method enables relief to be rapidly calculated, sanctioned, and proclaimed. On irrigated lands the crop depends on the ability of Government to supply water properly, and Government therefore wholly remits the assessment whenever from failure or excess of water any particular field lies waste or loses its crop; if crops requiring little or no irrigation are necessarily grown instead of rice, which is the standard, a lower assessment is charged.

Since a ryot is entitled to add to his holding at pleasure, either from waste or by transfer from others, or to decrease or abandon it, and since one-fifth of the holdings are irrigated and liable to failure of the water-supply, it is necessary, for these and other purposes, to hold an annual settlement of accounts (*jamabandi*), in order to ascertain and record any changes in the holdings and any remissions under the rules. This *jamabandi* in no way alters the field assessments and has absolutely no connexion with the thirty years' settlement.

The dues as finally determined at the *jamabandi* form the settled

demand for the year, and are payable by the ryots in several instalments, usually four of equal amounts. The principle aimed at in fixing the dates of these instalments is that at least the major portion of a ryot's crops should be marketable before he is called on to pay anything, and that he should not have to borrow for such purpose.

If dues are not paid punctually, Government is entitled to recover by selling the land or movables of the defaulter. The processes are lengthy and cautious. Personal imprisonment (civil), of males only, is allowable in case of fraud or wilful withholding of dues, and for short terms; no cases, however, have been known for many years, and the provision is a dead letter and unknown to the public. Interest on arrears is not chargeable till after the end of the revenue year (*fasli*), and cultivating necessaries (plough cattle and implements), in due proportion, are exempt from distraint. Before the date of the present law (Madras Act II of 1864) coercive process was wholly arbitrary and often oppressive. Since law has abolished personal oppression and introduced routine, there has been a statistical but not a real development of coercive processes, while actual coercion, as measured by sales, has considerably decreased in the last fifteen years, notwithstanding the great increase in the number of holdings and of ryots. The rules for recovery apply to defaulters under all classes of tenure.

The distribution of the land among the several classes, the character of the people, and the comparative absence of professional moneylenders of an alien class, owing to which the debt of the ryots is mostly incurred to other ryots, have rendered unnecessary any legislation or measures directed against the acquisition of land by non-agricultural classes.

The administration of the land revenue system is based upon a body of standing orders sanctioned by Government, which are modified and added to from time to time, and are published for general information in a handy form as well as in the District *Gazettes*, which latter also contain local orders approved by the Board of Revenue.

Prior to the British assumption, the position of the *zamīndārs*, or holders of estates under the Crown, was wholly uncertain (see the preamble to Regulation XXV of 1802); and in order to fix their position and limit the demands upon them, so that their demands upon the ryots might be equally fixed and limited, the permanent settlement system was introduced. The *zamīndārs* found in existence were confirmed in their estates and very many new ones were artificially formed; to all, permanent *sanads* (title-deeds) were issued. By 1820 most of the newly created and some of the previous holders had failed to pay their dues or keep their engagements and were sold up, their land being incorporated in the *ryotwāri* area. Hence the existing estates represent institutions of various classes, from ancient principalities and

baronies to mere modern fiscal creations. Whatever their history, however, their rights are similar; and so long as they pay the *peshkash* (permanent assessment) they are secure in their estates as against Government, and are entitled to levy the demand due from the cultivators.

The position of the cultivators in *zamīndāri* estates is not everywhere clear. History shows that in this Presidency the cultivator in general had *kudivāram* (ryot's share) rights, and was bound to pay only *melvāram* (superior share) to the state or its representative. Past anarchy and the misconceptions of later days frequently led, however, to illegal exactions and oppressions, whereby the *kudivāram* or occupancy rights were trenched upon and in some estates claims were set up inconsistent with such rights. These claims are opposed to the general history of a Madras cultivator and to his position in most estates, where he is fixed upon the land precisely like a *ryotwāri* cultivator.

Besides the peasant land (*ayan* or *jirāyati*), the *zamīndārs* usually have home farm (*pannai*) land, in which they possess complete rights and can consequently demand any rents they can obtain.

Owing to their position as representatives of the state, *zamīndārs*, and also *ināmdārs*, &c., have large powers of collection, including the distraint and sale of movables and the sale of the ryots' interest in the land. The present rent law is Madras Act VIII of 1865, but its imperfections and deficiencies are admitted, and a new law is under consideration.

The *zamīndāris* cover a total area of 26·3 million acres, or 29 per cent. of the Presidency, with a total population of 7,554,000, exclusive of those in the Agency tracts. The cultivated area is not known, but, as in the *ryotwāri* tracts, is probably about an acre per head of the population; the rentals are estimated at between three and four times the revenue paid to Government, which is 50 lakhs.

Ināms, other than mere grants of the assessment, are lands held, whether in *ryotwāri* or *zamīndāri* tracts, either revenue free or upon a reduced assessment (quit-rent). They are of many kinds, and result from grants made by former governments for religion, charity, public service, military and other rewards, and so forth. Their total area is 7·75 million acres, contained in about 444,000 holdings with 840,000 sharers. Of these, 3·52 million acres are held as 'whole *inām*' villages, which constitute separate estates with a population of 2·4 millions. The quit-rent due from them (7·4 lakhs) is about 16 per cent. of the rental paid by the cultivators. These villages are held in perpetuity, subject only to the payment of the quit-rent, which is fixed for ever. The remaining 4·23 million acres are held in small areas ('minor *ināms*') scattered throughout the villages. They are enjoyed

by village officers, servants, artisans, &c., as part of their emoluments, and by various other persons or institutions. Most of the personal and village service *ināms* have now been enfranchised; that is, the tenure has been freed from the conditions which originally limited it, and the lands have been made over in full property to the holders subject to a quit-rent. The quit-rent, which is fixed for ever, averages 8 annas; so that the holders enjoy a permanent light assessment. Religious and charitable *ināms* are held on condition of the performance of the services which they were originally intended to secure, and are liable to resumption on default.

The cultivated areas of all 'minor *ināms*' and of six-sevenths of the 'whole *inām*' villages are included in the detailed statistics of cultivation. The total amount of revenue relinquished by the state on these areas approaches 100 lakhs. The 'whole *inām*' villages pay 7·4 lakhs, and the 'minor *ināms*' 23 lakhs, as quit-rent.

Miscellaneous revenue.

After Land Revenue the next most considerable item in the revenue of the Government is derived from Salt, Excise or Abkāri (intoxicating liquors and drugs), and Customs. The department which deals with these three matters is administered by a small army of 11,000 men, controlled by the Separate Revenue branch of the Board of Revenue. This branch also manages two other important items of Miscellaneous Revenue: namely, Stamps and Income Tax.

In Madras the receipts from opium do not occupy so important a position as in some other Provinces. The cultivation of the poppy is prohibited, and the drug is supplied from Mālwā, through the Bombay Opium department, to two central storehouses, one in Madras and one at Cocanāda in Godāvari District. The opium revenue is derived partly from an excise duty of Rs. 5 per lb., and partly from fees and rents for the right of wholesale and retail sale. None but approved persons are allowed to be wholesale vendors, and the drug may be sold retail only at certain shops, the number of which is fixed for each locality. The right of retail sale is annually put up to auction. More than 43 per cent. of the opium brought into the Province is consumed in a single District, Godāvari. It is much used as a prophylactic against fever in the hill tracts of this and the adjoining Districts of Vizagapatam and Ganjām.

The opium revenue averaged 6½ lakhs during the decade 1881–90, and 7½ lakhs during the decade 1891–1900. In 1903–4 it was 8½ lakhs.

The administration of the salt revenue is regulated by the provisions of the Madras Salt Act (IV of 1889), under which the manufacture and sale of salt is a Government monopoly. All the salt is made under Government supervision in factories along the shore of the Bay

of Bengal, by running sea-water into shallow 'salt-pans' formed by levelling and embanking the ground, and leaving it to evaporate. There are two main systems of manufacture, known as the monopoly and the excise systems. Under the former, salt is manufactured for sale to Government only, and is disposed of by it to the trade. Under the latter, manufacture is for general sale, and the manufacturers are allowed to make such arrangements as they please for the disposal of their salt when once they have paid the duty on it.

The duty on all salt, Government or excise, is now (1907) R. 1 per maund of $82\frac{2}{7}$ lb., and is ordinarily payable before the salt is removed from the factory. In addition to the duty, a small charge (usually 3 annas a maund) is made to cover the cost of the manufacture of Government salt. Salt issued for the bona fide curing of fish, to the French Government, or for use in manufactures, is duty-free, only the approximate cost price being charged. Fish-curing is carried on in special yards under Government supervision, and is an important industry. In 1903-4 about 14,000 tons of fish were brought to the yards on the east coast and 39,000 tons to those on the west coast. Special precautions are taken and establishments maintained for suppressing the clandestine manufacture of earth-salt from saline efflorescences, the removal of spontaneous salt, and the smuggling of salt across the frontiers. These precautions are effective, as the consumption of duty-paid salt per head of the population is greater in Madras than in any other Province.

The quantity of salt manufactured averaged 267,000 tons during the decade 1881-90, and 306,000 tons during the decade 1891-1900. In 1903 it was 245,000 tons.

The quantity of salt imported duty-paid and duty-bearing from within India or from other countries averaged 36,000 tons during the decade 1881-90, and 44,000 tons during the decade 1891-1900. In 1903-4 the quantity was 38,000 tons. Almost all this comes from Bombay. In the West Coast Districts there has been no manufacture of salt since 1884, and the whole of the supply is imported, chiefly from Bombay. Bombay salt is also consumed largely in the Deccan Districts and Coimbatore, its lightness (salt is sold wholesale by weight but retail by measure) allowing it to compete successfully with Madras salt. The opening of extensions of the Southern Mahratta and Mysore State Railways has enabled it to compete with Madras salt also in parts of Mysore. The imports from Europe are insignificant, consisting only of refined salt for the consumption of Europeans.

The gross revenue from salt, exclusive of miscellaneous receipts, averaged 149 lakhs during the decade 1881-90, and 181 lakhs during the decade 1891-1900. In 1903-4 it was 195 lakhs. The consumption averaged 237,000 tons during the decade 1881-90, and

276,000 tons during the decade 1891–1900. In 1903–4 it was 307,000 tons. These figures include the minor Native States of Pudukkottai, Banganapalle, and Sandūr. The consumption of salt per head of the population in 1881–2, 1891–2, and 1903–4 was 12·49, 15·18, and 17·79 lb. respectively.

The principal articles from which the excise (*ābkāri*) revenue is derived are arrack, toddy, foreign liquor, and intoxicating drugs prepared from the hemp plant (*Cannabis sativa*). The law relating to the subject is contained in Madras Act I of 1886.

The revenue from arrack, or country spirit, a species of rum ordinarily distilled from cane or palm jaggery[1], or from the molasses obtained in the process of manufacturing refined sugar from jaggery, consists partly of a fixed duty (now for the greater part of the Presidency Rs. 4–6) on every gallon of proof strength issued from distilleries, and partly of fees for the privilege of sale. Distillation is permitted only in large central distilleries, owned by private individuals or firms, to each of which the contract for the wholesale supply of spirits to one or more Districts is assigned. The price per gallon, and the strengths (generally 20°, 30°, and 60° under proof) at which spirits may be issued, are specified in the licence granted to the distiller. Distilleries and breweries are supervised by an officer with experience in the English Inland Revenue department, aided by a staff specially trained under him in English methods. This officer also superintends a laboratory, in which analyses required by the Salt and Excise department are carried out. Retail sale of arrack is allowed only in authorized shops, the number of which is fixed for each locality. The right of sale in these is put up to auction, each shop being usually sold separately, every year. For consumption in the two West Coast Districts, spirit is distilled directly from toddy in one or more distilleries belonging to Government, which are leased out to those who have contracted for the wholesale supply of the Districts. This spirit is excised at the same strengths as country spirit manufactured from jaggery or molasses. In the hill tracts of Ganjām, Vizagapatam, and Godāvari, spirit is distilled from the flower of the *mahuā*-tree (*Bassia latifolia*), the right of manufacture and sale being sold by specified areas called 'farms' in Ganjām and Godāvari, and by separate shops in Vizagapatam. The gross revenue from arrack during the two decades 1881–90 and 1891–1900 averaged 46 lakhs and 56½ lakhs respectively, the increase being due mainly to improvements in the system of administration. In 1903–4 the revenue was 72 lakhs.

Toddy is the fermented sap of the coco-nut, palmyra, date, sago (*Caryota urens*), or *dadasal* (*Arenga Wightii*) palms. It is obtained

[1] Coarse brown (or almost black) sugar made by boiling the juice of the sugar-cane or palm over a slow fire.

by cutting the end off the flower-spathe of the palm (or by making an incision in the bark) and hanging a pot below to catch the sap as it exudes. When first drawn the sap is not intoxicating, and is known as 'sweet toddy,' but it quickly ferments. The toddy revenue is derived partly from a tax on each tree tapped in this manner, and partly from fees for the right of retail sale. No sale is allowed except in licensed shops, the number of which is fixed, as in the case of arrack shops, for each locality, and the privilege of retail sale in these is sold annually by auction. Domestic manufacture is, however, allowed to a limited extent. In Godāvari, Madras, South Kanara, and Malabar Districts the drawing of sweet or unfermented toddy for the manufacture of jaggery, or for use as a beverage, is permitted under licences issued free. Elsewhere this is allowed without any restriction. The gross revenue from toddy averaged 31 lakhs during the decade 1881–90, and 65¾ lakhs during 1891–1900. In 1903–4 it amounted to 88 lakhs. The gradual extension of the tree-tax system, under which the revenue is derived mainly from the tax on each tree tapped and less from the sale of shops, accounts for the steady increase in the figures.

'Foreign liquor,' for excise purposes, includes all liquors imported from outside British India, as well as liquors made in the Presidency which have been excised at the full tariff rate of import duty. It also includes beer (whether brewed in or out of India), caoutchoucined or methylated spirits, and rectified spirits. For the sale of foreign liquor for consumption on the premises tavern licences are granted, the fees for which are determined by auction; but wholesale licences, retail licences for consumption off the premises, for refreshment rooms, bars, &c., and all other kinds of licences are granted at fixed rates. The excise duty on foreign spirit is Rs. 6 per proof gallon, and on beer 1 anna per gallon. Caoutchoucined or methylated spirits, excised on payment of a duty of 5 per cent. *ad valorem*, may not be sold in taverns or other shops licensed for the sale of potable foreign liquors, but special licences for both sale and use are granted free of charge to approved persons. Licences for the sale of rectified spirits excised at the tariff rate of Rs. 6 per proof gallon are issued to chemists and druggists on payment of fixed fees. The gross revenue from foreign liquor (excluding customs) averaged 4 lakhs during the decade 1881–90, and 3½ lakhs during 1891–1900. In 1903–4 it was 4 lakhs.

Cultivation of the narcotic hemp plant (*Cannabis sativa*) is allowed only in the Javādi Hills in North Arcot and in one or two villages in the Bāpatla *tāluk* of Guntūr. Licences for cultivation are issued free, the licensees being bound to bring all their produce to storehouses established by Government, one in each tract. As in the case of opium, consumption is highest in hilly and malarious tracts. Licensed vendors must obtain their drugs from holders of stocks at

Government storehouses, upon payment of duty at the rate of Rs. 4[1] per seer (2 lb.) of *gānja* and 8 annas per seer of *bhang*. The gross revenue during the decade 1891–1900 averaged Rs. 90,000, and in 1903–4 it was 3 lakhs. No revenue was realized from this source before 1889, and it was not until 1897 that cultivation, manufacture, transport, &c., were brought under control.

The total Excise (*ābkāri* and opium) revenue, including miscellaneous receipts but excluding customs duty on imported liquor, averaged 88¼ lakhs during the decade 1881–90, and 135 lakhs during 1891–1900. In 1903–4 it was 177 lakhs. The incidence of this revenue per head of the population for 1881, 1891, and 1903–4 works out to 3 annas, 5 annas 1 pie, and 7 annas 5 pies respectively.

Intoxicants are drunk only by certain castes and classes of the people, but if these cannot get licit liquor they will obtain liquor illicitly. The efforts of Government are therefore directed to providing reasonable facilities for obtaining licit liquor everywhere, the price being raised as high as possible without forcing the public to illicit practices. To this end contractors are compelled to open wholesale dépôts for the supply of country spirit at carefully selected centres, and are not permitted to concentrate their efforts upon populous localities where the highest profits can be obtained. The privilege of manufacture is separated from that of sale except in a few outlying areas, and endeavours are made to restrict consumption by raising taxation. The consumption of country spirits has fallen from 1,305,000 proof gallons in 1891–2 to 1,215,000 proof gallons in 1903–4, the number of shops having been reduced from 34,000 in 1881–2 to 32,000 in 1891–2 and 29,000 in 1903–4. There is no strong native public opinion on the question of temperance, and public representations on subjects connected with the supply of intoxicants are rare. Statistics show that natives who can afford it are consuming imported malt liquor and spirits in preference to country spirit.

The Customs revenue is derived from duties on imports from outside British India brought in by land or sea. The only land customs are those on goods imported from the French Possessions. The arrangements in force with the various Native States concerning customs and excise duties are described in the articles regarding them.

Of the sea customs collections, 80 per cent. is derived from import duties, the only exports which are taxed being rice and paddy (unhusked rice). The collections during the decades ending 1889–90 and 1899–1900 averaged 14 lakhs and 29 lakhs respectively, and in 1903–4 they amounted to 54 lakhs. The chief items in this last year were spirits (10½ lakhs), petroleum (7 lakhs), and cotton manufactures (7½ lakhs). The Collector of Sea Customs, Madras, is the chief

[1] Raised to Rs. 5 in 1906.

customs officer for all the ports in the Presidency, controlling routine customs matters and being the referee on all points of practice and procedure; but the upper officers of the Salt, Abkāri, and Customs department are responsible for the proper conduct of customs work within their charges.

The following figures give the revenue from stamps in recent years, in lakhs of rupees :—

	Judicial.	Non-judicial.
Average for 1881–90 .	35¾	20
" 1891–1900 .	48¾	25½
1903–4	53	31¾

Plentiful harvests usually cause an increase in the sale of both judicial and non-judicial stamps, for the luxury of litigation is then possible and business of all kinds is brisk. Bad seasons reduce the demand for judicial stamps by discouraging litigation, but increase the sale of non-judicial stamps by the necessity which they occasion for raising loans. This latter increase, however, usually dies away rapidly if the state of the season becomes acute, for credit then shrinks and loans are with difficulty obtainable.

The net revenue from the income tax between 1886–7 and 1889–90 averaged 16·5 lakhs. Between 1890–1 and 1899–1900 it averaged 23·7 lakhs. In 1903–4 it was 26 lakhs, the incidence of taxation was 1 anna per head, and there was one assessee per 1,000 of the population.

Local and municipal.

Local self-government is no new thing in Madras, but dates from the middle of last century. It now plays an important part in the administration of the country. The great majority of the roads, schools, hospitals, dispensaries, markets, arrangements for sanitation and vaccination, and public resthouses for Europeans and natives are under the immediate charge or control of local bodies, and are financed from the funds they administer, Government prescribing the policy which shall be followed in each of these branches of work, and exercising a close supervision, through Collectors of Districts and the officers of the Educational, Medical, and other departments, and by means of a special branch (Local and Municipal) of the Secretariat.

All the larger towns are governed by the municipal councils referred to below. In the rural areas outside them, local affairs are managed by local boards. These latter are of two kinds, *tāluk* boards and District boards. The *tāluk* boards are usually in charge of areas conterminous with the revenue subdivisions of the District, and the divisional officers are their presidents. They are subordinate to the District boards, which control local affairs throughout the whole of each District, and of which the Collectors are the presidents.

Villages which are too small to be constituted municipalities, but are large enough to require some measure of sanitation, are formed into Unions governed by bodies called *panchāyats*, which are controlled by the *tāluk* boards, and have power to levy a house tax and to spend it on sanitary and other needs.

Cesses for the upkeep of local roads were collected as long ago as 1854. Mr. Edward Maltby, Collector of South Arcot, suggested in 1853 the levy of a cess of 1 anna per *kāni* (1·32 acres) to be expended on roads, and his proposal was approved and introduced into several Districts. The Madras Road Cess Act (III of 1866) raised the cess to 6 pies in every rupee of the land revenue. In 1863 the Madras Education Act authorized the collection of a voluntary cess for educational purposes; but the enactment was a failure, and in 1871 the Madras Local Funds Act was introduced, which authorized the levy of a single rate not exceeding 1 anna in the rupee to provide for roads, education, and other public objects, and established the first local boards. The law which now governs operations is the Madras Local Boards Act (V of 1884).

On March 31, 1904, there were 21 District boards (or one[1] in each District, excluding Madras City which has a municipal corporation), 80 *tāluk* boards, and 379 *panchāyats*. Of the 657 members of the District boards, 307 were elected by the *tāluk* boards. The remainder, and all the members of the *tāluk* boards and *panchāyats*, were either *ex-officio* members or were appointed by Government.

Statistics of the total receipts and expenditure of the local boards are given in Table XI at the end of this article (p. 359). By far the largest source of income is the cess on land. The chief item of expenditure is roads and buildings, and each District board employs an engineer, known as the Local Fund Engineer, to supervise this part of its work. The next heaviest items of outlay are the grants towards medical and educational needs. In times of scarcity the boards are required to assist the Government in maintaining relief works.

Since the boards were originated, the development of the various branches of their work has been very striking, as shown below :—

	1872-3.	1903-4.
Mileage of roads maintained	15,759	22,015
Expenditure on them	Rs. 17,09,874	Rs. 26,66,726
Hospitals and dispensaries maintained	93	350
Patients treated in them	427,179	3,032,608
Persons vaccinated	326,466	1,073,028
Schools maintained	323	2,347
Pupils attending them	10,631	121,172

[1] A separate District board (Koraput) for a part of the large District of Vizagapatam was constituted in 1905.

The latest direction in which some of the District boards are employing their revenues is the construction of local railways. The Tanjore District board has constructed 99 miles of metre-gauge line at a cost of 40½ lakhs. The section which is open is worked by the South Indian Railway under an agreement with the board, and pays over 4½ per cent. on its cost. Other boards are contemplating the construction of similar lines.

The history of municipal action in MADRAS CITY is referred to in the article on the town. Outside it, municipal administration dates back to 1850, in which year the first Towns Improvement Act was passed for the whole of India. This, however, could be extended only to such towns as desired it, and very few showed a disposition to accept the power it offered them to tax themselves. It was followed by the Madras Towns Improvement Act, 1865, which established municipal councils for the first time. Of the 60 municipalities now in existence, 43 were constituted under that Act. The Towns Improvement Act of 1871, which was the next municipal enactment, relieved the councils of the charge on account of police, but included education, lighting, sanitation, vaccination, and the registration of births and deaths among the objects to which the proceeds of taxation should be devoted. A Commission appointed at the instance of Lord Ripon's Government recommended an increase in the number of municipalities, an extension of the elective franchise, the appointment of non-official chairmen, and other developments of the principle of self-government; and the result was the existing Madras District Municipalities Act (IV of 1884). This has recently been amended by Madras Act III of 1897, under which the councils have received increased powers of taxation to enable them to finance comprehensive schemes of water-supply and drainage.

On March 31, 1904, the 60 municipal councils consisted of 944 members, of whom 426 were nominated by Government, 450 were elected by the ratepayers, and the remaining 68 were *ex-officio* members. Of the total number of members, 208 were officials and 736 non-officials, while by race 172 were Europeans and 772 were natives of the country. In 38 of the councils the chairman was a non-official.

Of the 60 municipal towns, the population of two—namely, Madura and Trichinopoly—exceeded 100,000 in 1901; that of three—Anantapur, Kodaikānal, and Coonoor—was less than 10,000; and that of the remainder ranged between 10,067 and 76,868. In 1903–4 the total income of all the municipalities from taxation was 16 lakhs, and from tolls 4 lakhs, and the population included in them was 1,915,000; so that the incidence of taxation per head was Rs. 1–0–7 including tolls, and 13 annas 1 pie excluding tolls. The statistics in Table XII at the end of this article (p. 359) show the chief sources of receipts and the main items of expenditure.

Since 1885–6, the first year in which the Act of 1884 came into effective operation, the extension of municipal action has been rapid, as shown by the following figures:—

	1885–6.	1903–4.
	Rs.	Rs.
Total receipts from taxation . . .	10,23,328	19,82,840
Expenditure on public works . . .	2,22,765	5,73,528
" on education . . .	2,11,173	3,90,223
" on sanitation . . .	3,89,012	9,49,534

The second of these items excludes the outlay on a number of comprehensive schemes of water-supply and drainage which have usually been carried out by the Sanitary Engineer to Government.

Since 1890 water-supply schemes have been introduced in the municipalities of Adoni, Cocanāda, Conjeeveram, Cuddapah, Kurnool, Madura, Trichinopoly, Tanjore, Dindigul, Ootacamund, Tirupati, and Vizagapatam, and drainage schemes in Coonoor, Kumbakonam, and Ootacamund. The total capital cost of these up to the end of 1903–4 was 43 lakhs, of which Government made a free grant to the councils of 20 lakhs and advanced them 19 lakhs on loan. These loans are granted at a fixed rate of interest, the municipalities making annual payments to Government sufficient to recoup both interest and principal in thirty years. A number of additional schemes are under consideration[1].

Public works.

The Public Works Secretariat, as has already been mentioned, consists of three branches—Roads and Buildings, Irrigation, and Railway—each under its own secretary. While, however, the administrative staff of the Railway branch is distinct from the rest of the department, the staffs of the other two branches, contrary to the practice obtaining in most other Provinces, form one body and are employed upon roads, buildings, or irrigation as need arises. This part of the department consists of two distinct divisions: the Engineer and the Subordinate establishment, of which the former has been usually recruited from the Royal Engineering College at Cooper's Hill, and the latter from institutions in India. In addition to these and separate from them is an Accounts department which, like the Accountant-General's office, occupies a position in some respects independent of the Local Government and under the direct control of the Government of India. The head of the whole department is the Chief Engineer, who is secretary in the Roads and Buildings branch, and in charge of the posting, promotion, &c., of the executive establishment of all kinds; while irrigation works are under the immediate control of the Chief Engineer for Irrigation, who is secretary to the Irrigation branch.

[1] Water-works were opened in Guntūr municipality in 1905.

For administrative purposes, the Presidency is divided into six Public Works circles, each under a Superintending Engineer who deals with all executive questions arising within it, whether they are connected with roads, buildings, or irrigation. The circles are again split up into divisions, each under an Executive Engineer, and subdivisions under Assistant Engineers or members of the upper Subordinate establishment referred to above. These divisions are not always conterminous with Collectorates, but are arranged according to the importance of the work in the various areas. Each of the three irrigated deltas, for example, contains two divisions, each under an Executive Engineer, while the Districts of South Kanara and Malabar form together a single division under the Executive Engineer at Calicut. Similarly the Districts of Bellary and Anantapur form together a single division with head-quarters at Bellary. Workshops belonging to the department are maintained at Madras, Bezwāda, and Dowlaishweram.

The department of Public Works plans and executes engineering works for all departments of both the Imperial and the Provincial Governments, and also occasionally for local bodies and for estates under the Court of Wards. Ever since the introduction of Provincial finance its expenditure has steadily increased, but changes in the rules apportioning this outlay between Imperial and Provincial funds render it difficult to exhibit the advance statistically.

In the Roads and Buildings branch the chief roads made during the past twenty years have been the Pottangi-Koraput and Pottangi *ghāt* roads in Vizagapatam District, the Vayittiri-Gūdalūr road in the Wynaad, the Bodināyakkanūr-Kottagudi road in Madura, the *ghāt* road to Yercaud on the Shevaroy Hills, and the roads opening out the coffee plantations on the Anaimalai Hills. The department usually carries out only such roads as require exceptional professional skill, others being executed by the District boards already referred to.

The principal bridges built during the same period are those over the Ponnaiyār and the Gadilam at Cuddalore, and over the Vaigai at Madura, the Mahāsingi iron girder-bridge in Ganjām, and the causeway over the Pālār river in North Arcot.

Among the buildings erected during the same period are—in Madras City, the Post and Telegraph offices, the High Court, the Law College, the Victoria Students' Hostel, the Connemara Library, the Ophthalmic Hospital, and the Victoria Hospital for caste and *gosha* (or *parda*) women; and, outside Madras City—the Government House, Ootacamund; Collectors' offices at Cuddalore, Anantapur, Cuddapah, and Calicut; the District Court at Calicut, the District jail and public offices at Tanjore, the pier at Tuticorin, and ten lighthouses. Designs for important buildings are prepared by the Consulting Architect to Government, who is an officer of the department.

In the Irrigation branch, the undertakings carried out from Imperial funds since 1882-3 have been the great PERIYĀR PROJECT in Madura, the RUSHIKULYA project in Ganjām, and the Barūr tank project in Salem; and from Provincial funds, the Sagileru project in Cuddapah, and the Muneru and Dondapād tank projects, both in Kistna. Besides the expenditure on these new works, more than 32 lakhs was laid out during the decade ending 1902-3 in improving the larger irrigation schemes known as 'major works,' and a considerable amount on certain works of special interest connected with the three dams which control the irrigation of the Cauvery delta.

Among works now in course of execution are the Chapād and Vemula tank projects in Cuddapah, the Ponnalūr, Hājipuram, and Yerūr tank projects in Nellore, and the Atmakūr and Jangamaheswarapuram tank projects in Kistna. Until lately it was accepted as a fundamental principle that no irrigation work should be undertaken which did not promise a direct minimum return per cent. on its capital outlay; and this barred the execution of a number of schemes which, though they would have provided valuable protection against famine, were too costly to return the minimum interest demanded. Recently, however, an appreciation of the immense indirect benefits accruing from large irrigation schemes has led to a relaxation of this principle, and a number of schemes which were formerly unfavourably regarded are now being investigated. Chief among these are the project for leading the surplus water of the TUNGABHADRA river in Bellary District into the PENNER, and the proposal to provide reservoirs on the BHAVĀNI and the KISTNA to supplement the supply available in the deltas of the Cauvery and the Kistna respectively.

Army.

The total strength of the British and Native army stationed within the Presidency at the end of 1904 was—British, 2,731; Native, 5,870; total, 8,601. The Presidency is garrisoned by the Secunderābād division, which is for the present directly under the Commander-in-Chief, the former Madras command having been abolished in October, 1904. The military stations occupied in 1905 were Bellary, Calicut, Cannanore, Madras (Fort St. George and Perambūr), Malappuram, Ootacamund, Pallāvaram, St. Thomas's Mount, Trichinopoly, Vizianagram, and Wellington. Madras has an arsenal, a gun-carriage factory (recently closed), and harness and saddlery workshops; and there is a cordite factory at Wellington.

In addition to the Southern Mahratta Railway Rifles, whose headquarters are outside the Presidency (at Hubli in Bombay), there are Volunteer Corps at Madras, Ootacamund, Negapatam, Waltair, Calicut, and Yercaud. Their total strength in 1904 was 4,531, of whom 279 were artillery and 45 mounted rifles.

The Native States of Travancore, Cochin, and Pudukkottai each

maintain a small armed force. The Nāyar Brigade in the first of these, which is officered from the Indian Army, numbers 1,442 men, and the Mahārājā has also a mounted bodyguard of 61 men. The forces in the two other States aggregate 325 and 129 respectively.

Police and jails.

In the days of native rule in Southern India the only police organization was the ancient *kāval* (watch) system. Under this, *talaiyāris* (watchmen) in each village, subordinate to *kāvalgārs* (head-watchmen) in charge of groups of villages, who in their turn were usually controlled by the *poligārs* or local chieftains, undertook, in consideration of payments from the people within their charges, to protect property and make good any loss from theft. Their remuneration nominally consisted of a share of the crops harvested, fees from non-agriculturists such as traders and artisans, and the proceeds of land granted free of rent. But, considerable as these revenues often were, the system usually degenerated into one of organized blackmail, and the watchmen moreover harassed the people and helped themselves to the property they were paid to protect.

When the Company acquired the country, it relieved the *poligārs* and head-watchmen of their duties, interdicting their exactions and resuming their free-grant lands, but retained the village watchmen on fixed emoluments. By Regulation XI of 1816, these last were placed under the authority of the village headmen and the officers of the Revenue department.

The present police force, which is independent of the Revenue officials, was organized in 1859 by Mr. (afterwards Sir William) Robinson. The village watchmen (usually known as *talaiyāris*) were, however, retained on the old footing, and their co-operation with the regular police is still a valuable part of the system.

In 1904 there was one regular policeman to every 6 square miles of area and to every 1,558 of the population, and one village policeman to the same number of square miles and to every 1,612 persons. Details are given in Table XIII at the end of this article (p. 360). The head of the department is the Inspector-General, who is assisted by three Deputy-Inspectors-General. The Madras City police, under a Commissioner, are distinct from those in the Districts. Each District is in charge of a District Superintendent, sometimes aided by one or more Assistant Superintendents. These officers were formerly appointed by nomination, but are now mostly chosen by competitive examination in England[1]. Inspectors, the next grade, are selected by the Inspector-General, while constables are recruited by District and Assistant Superintendents. Educated natives compete readily for Inspectors' posts, the salaries of which have been from time to time increased, but the pay of

[1] A new grade of Deputy-Superintendents, recruited solely from the subordinate native officers, was formed in 1905.

the lower grades is insufficient to attract them. Assistant Superintendents and Inspectors are appointed on probation, and are required to attend the Police Training School at Vellore for a certain period. Constables have to go through a six months' training as recruits at the District head-quarters, and are not promoted to be head-constables until they have passed a certain test. Candidates selected by District Superintendents are trained for this test at the Vellore School for six months. The village police undergo no training, their duties being confined to patrolling, surveillance of strangers in their villages, executing criminal processes, supplying the regular police with information, and, in the case of the *ghāt talaiyāris*, watching the wilder *ghāts* and passes where robbery is easiest.

Detection of crime is in the hands of the ordinary police, there being no special detective staff. Since 1894 finger-impressions of convicted persons have been recorded and classified in the Inspector-General's office, and the system has become a valuable aid in tracing the antecedents of suspected persons.

Most of the police are armed with Snider carbines with the rifling bored out, but these weapons are kept in the stations and not usually carried by men on ordinary duty. The reserves (bodies of picked men retained at the District head-quarters) are armed in the wilder Districts with the long Snider rifle, as are all punitive police: that is, special forces temporarily quartered in areas where serious riots have occurred, and paid for by a special tax on the inhabitants.

The extension of railways in recent years has given the professional criminal so great an advantage that in 1895 a special force of Railway police was organized. This force is required to co-operate with the District police, and is divided into a stationary platform staff which preserves order within railway limits, and a detective and travelling staff. The railway companies contribute towards its maintenance.

The Criminal Tribes Act has not been brought into force anywhere in the Presidency, but the many wandering gangs of persons of the criminal castes are specially watched by the police.

Statistics of cognizable crime (that is, offences for which the police may arrest without a magistrate's warrant) are given below:—

Number of cases	Average, 1897-1901.	1904.
Reported	161,312	170,134
Decided in the courts	137,690	147,438
Ending in acquittal or discharge	7,062	7,692
" conviction	122,403	132,158

The native governments had no regular prisons, and it devolved upon the British to provide them. The larger jails were originally in the

charge of the several District Judges, but in 1855 the first Inspector-General of Prisons was appointed.

The existing jails are of three classes: namely, Central jails under whole-time Superintendents, with accommodation on an average for 1,000 prisoners each; the smaller District jails, as a rule in charge of District Medical and Sanitary officers; and subsidiary jails, under the immediate control of the subordinate magistracy, in which only prisoners sentenced to terms of a month or less are usually confined. It has been found to conduce to economy and improved administration to close some of the District jails and proportionately enlarge the Central jails. Prisoners from the Agency tracts in Ganjām suffer so seriously from malaria if brought down to the coast that a special prison has been built for them at Russellkonda near the hills, of which the divisional officer is in charge.

The average daily population in all the jails in 1904 was 10,976, and the cost of the department amounted to 7 lakhs. Detailed statistics are given in Table XIV at the end of this article (p. 360).

There is a reformatory school for juvenile offenders at Chingleput, which has done good work.

Except in subsidiary jails, prisoners under sentence of hard labour are largely employed upon manufactures, this system not only tending to reduce prison expenditure, but also to teach the convict an employment which will be useful to him when released. Most of the manufactures are for the army and the various departments of Government; and they consist largely of weaving cloth, blankets, tape, &c., and making shoes and sandals, mats and ropes. In the Vellore Central jail the chief industry is the manufacture of tents for Government departments; in the Penitentiary at Madras large numbers of prisoners are employed in printing for Government; while in the Coimbatore Central jail the main form of employment is weaving.

Education.

The first impulse to education in the Presidency was given by a Government inquiry into the matter suggested by Sir Thomas Munro in 1822. This showed that there was approximately one school to every 1,000 of the population, and that the number of boys taught was one-fourth of the population of school-going age; but it also showed that the instruction imparted in these indigenous institutions was of little practical value, tending rather to burden the memory than to train the intellect. A Board was therefore appointed to organize a system of public instruction, an annual grant of Rs. 50,000 was sanctioned for the establishment of schools, and in 1826 14 Collectorate and 81 *tāluk* schools, with a central training school at Madras, were opened. In 1836 this scheme was pronounced a failure, and the schools were abolished as inefficient. The whole policy was then altered, and it was decided that European literature and science

(instead of native literature) should be encouraged. The Board of Public Instruction was superseded by a Committee for Native Education. But this latter was not a success, and in 1840 a University Board was instituted by Lord Ellenborough's Government to organize and establish a central school and a few provincial schools to be connected with it by scholarships. In 1841 the central school was converted into a high school, in 1853 a college department was added to it, and later it developed into the Presidency College. Between 1836 and 1852 little progress was made; but in the latter year the University Board was invested with the functions of a Board of General Education, the annual grant of Rs. 50,000 was doubled, and by the end of 1854 there were, besides the central college at Madras, five provincial schools, and a few elementary vernacular schools in Cuddalore, Rājahmundry, and elsewhere.

Some of the indigenous schools still existed, and there were, in addition, a large number of mission schools. Most of the latter were elementary institutions. The General Assembly's school started in Madras in 1837 by the Rev. John Anderson, the pioneer of higher education in the Presidency—which developed into the present Christian College—is, however, one instance of the foundation of a school of a superior class. There were also a few institutions established by native agencies, the most important being Pachayyappa's at Madras, which was opened in 1842.

In the early fifties Mr. G. N. Taylor, Sub-Collector at Rājahmundry, formed a society for the encouragement of vernacular education, and established elementary schools at Narasapur (the nucleus of the present Taylor high school) and three neighbouring towns. In 1855 he organized a system of village schools, which were mainly supported by local subscriptions and were inspected by officials appointed by Government; and by 1861 these numbered 101.

In 1854 the Court of Directors issued its memorable dispatch regarding education. Thereupon the present Educational department, with a Director of Public Instruction and an inspecting staff, was organized; the so-called Madras University was remodelled and designated the Presidency College; a normal school was established; Zila, or District, schools were opened; and the grant-in-aid system was introduced. This last gave a great impetus to aided education, mainly by its liberal provisions in regard to salary grants and the introduction of the results system. While in 1859 there were 460 educational institutions with 14,900 pupils, by 1881 (see Table XV at the end of this article, p. 361) these figures had risen to 12,900 and 327,800.

Higher education in the Presidency largely owes its extension and consolidation to Mr. E. B. Powell and the Rev. Dr. Miller. The former was in charge of the central school at Madras, already referred

to, from 1840 to 1862, during which time he expanded it into the existing Presidency College, and was subsequently Director of Public Instruction for twelve years. The latter took charge in 1862 of the school which the Rev. John Anderson had started and transformed it into the present Madras Christian College, the premier private college of Madras. Both gentlemen, moreover, exercised the widest influence in all the many educational questions which have from time to time arisen.

The Educational department comprises three services: namely, the Indian Educational service, which is entirely recruited from England, and includes 23 officers, of whom 16 are principals, vice-principals, or professors in the colleges, and 6 belong to the inspecting staff; the Provincial service, recruited in India and comprising 35 officers, of whom 11 belong to the inspecting staff and the remainder are head masters or lecturers in the colleges; and the Subordinate service, including all officers whose salaries are below Rs. 200. All educational institutions which are qualified for recognition are inspected by the department. This is effected by 7 Inspectors (2 of whom are natives), 12 Assistant, and 58 Sub-Assistant Inspectors. Girls' schools and primary classes are supervised by separate staffs. The chief direct instruction carried out by the department is in the Government colleges.

In 1857 the Madras University was incorporated by legislative enactment. Its constitution was materially altered by the recent Act VIII of 1904. It now controls education in Coorg, Hyderābād, Mysore, and Ceylon, as well as within the Presidency. Its Senate or governing body is composed of the Chancellor (the Governor of Madras), the Vice-Chancellor (nominated by Government from among the Fellows for a period of two years), 5 *ex-officio* Fellows, and 50 to 100 ordinary Fellows, 10 of whom are elected by the registered graduates and 10 by the Faculties, while the remainder are nominated by the Chancellor. It is divided into the four Faculties of Arts, Law, Medicine, and Engineering. The executive government of the University is vested in a Syndicate, consisting of the Vice-Chancellor, the Director of Public Instruction, and 10 other ordinary or *ex-officio* Fellows elected by the Senate, 5 of whom must be heads of, or professors in, colleges affiliated to the University. The powers of the Syndicate include the control of examinations and the appointment of Fellows and others to the boards of studies. There are fourteen of these boards; and they hold office for three years, nominate examiners in their respective branches, recommend textbooks, and so forth.

The colleges affiliated to the University, including those in Native States, numbered 50 in 1891 and 61 in 1904. They comprise the Government colleges of Law, Medicine, and Engineering at Madras, the Law college at Trivandrum, 2 Government training colleges at

Saidapet and Rājahmundry, and 55 Arts colleges, of which 15 are first-grade and 40 second-grade. Of the first-grade colleges, 3 (the Presidency College and the institutions at Kumbakonam and Rājahmundry) are maintained by Government, and 8 (the Madras Christian College, Pachayyappa's College, the Jesuit and S.P.G. Colleges at Trichinopoly, St. Peter's College at Tanjore, the Noble College at Masulipatam, the Mahārājā's College at Vizianagram, and St. Aloysius's College, Mangalore) are managed by private agencies. Of the second-grade institutions, one of the best known is the Victoria College at Pālghāt, which is managed by the local municipal council.

The University has been self-supporting since 1879, and now has a balance in hand of over 5 lakhs. In 1904 its expenditure was Rs. 2,12,000, while its receipts from fees were Rs. 2,31,000 and from other sources Rs. 15,000.

The number of degrees conferred in recent years is given in Table XVA (p. 362). The minimum length of attendance at a college for the attainment of a degree is four years. To deliver students from the unwholesome surroundings of native lodgings, a number of hostels have lately been opened for their accommodation. The first was started in connexion with the Christian College by Dr. Miller in 1882. Three others were afterwards added by him, partly at his own expense. The Victoria hostel attached to the Presidency College has accommodation for 178 students; five smaller ones for members of different religions and sects have been established in connexion with the Saidapet Teachers' College; and others are being erected for the Government colleges at Rājahmundry and Kumbakonam. Many mission institutions already possess boarding-houses, and other private colleges and schools are erecting similar buildings.

The secondary course of education consists of two stages. Boys from the primary schools enter the lower secondary classes, of which there are three, remain in them three years, and then pass to the upper secondary classes. These are similarly three in number, and the course again lasts three years. In the highest class boys are prepared for the University matriculation. In lower secondary schools reading, writing, and arithmetic are compulsory, and there are a number of optional subjects. Instruction is at first entirely in the vernacular, but English is introduced gradually. In the upper secondary classes English, a second language, arithmetic, Euclid, algebra, history, geography, drawing, and science (physics and chemistry) are compulsory subjects; and while in the lowest of the three forms some instruction is still given in the vernacular, in the two highest it is almost entirely in English.

Of the secondary schools in existence in 1904, Government maintained 2 per cent., the local boards 19 per cent., and the municipal

councils $4\frac{1}{2}$ per cent., while $54\frac{1}{2}$ per cent. were aided and 20 per cent. unaided institutions. Aid is given from public funds—by grants towards the salary of the teachers proportioned to their qualifications; by fixed grants; by grants varying with the results obtained at the public examinations; or by contributions towards the cost of buildings, hostels, books, furniture, and so forth. In 1904 one boy in every 45 of a school-going age was in the secondary classes.

Primary education has two stages, the lower covering four years and the upper a fifth year. Lower primary schools are those in which there are only four standards—infant and first to third—and upper primary those in which there is a fourth standard. The compulsory subjects are reading, writing, and arithmetic. Instruction is given entirely through the vernacular, but English may be taught as an optional subject in the third and fourth standards.

Of the public primary schools in existence in 1904, 53 per cent. were aided and 33 per cent. unaided, while 12 per cent. were maintained by local boards, and the small remainder by Government or municipal councils. To schools which satisfy the conditions required for recognition by the Educational department, aid is given in the shape of fixed grants, the amount of which is determined chiefly by their efficiency; schools which only partially fulfil these conditions are aided either with fixed grants or with results grants calculated upon the results of the standard and primary examinations; while schools under public management gain salary-results grants, half the results grants earned being paid to the teachers, who receive fixed salaries in lieu of the other half.

In 1904 one boy in every 5 of a school-going age was in the primary classes. Table XV (p. 361) shows the considerable advance in recent years. The introduction of results grants in 1865 and the provisions of the Towns Improvement and Local Funds Acts of 1871, authorizing local bodies to devote funds to education, were instrumental in giving the first impetus. Except that agriculture is an optional subject, there are no special arrangements for the instruction of children belonging to the agricultural classes. The qualification for teachers in upper and lower primary schools is a pass in the lower secondary or upper primary examination respectively, and the receipt of the teachers' certificate of those grades. But the supply of men so qualified is less than the demand, and teachers of approved experience are considered qualified even though they have not passed these tests. Their usual rates of pay are from Rs. 7 to Rs. 12 a month.

The education of girls was begun by missionaries, and it was not until 1866 that Government started its own schools for them. In 1881 there were 540 schools for girls; in 1891, 987; and in 1904, 1,091. The percentage of girls under instruction to the population of school-

going age in those years was 1·6, 3·3, and 4·8 respectively. In 1896 a second-grade college for girls was opened at Pālamcottah, and two others were started in Madras City in 1899 and 1900. All three are under mission management. Of the public schools of all grades for girls in 1904, 16 per cent. were maintained by Government, 1 per cent. by the local boards and municipalities, and 83 per cent. by private agencies. The missions take the largest share in the extension of female education; but Government makes special efforts in the matter, maintaining schools all over the Presidency which are directly managed by inspecting officers, and granting exceptional concessions and assistance. The subjects taught to girls are reading, writing, and arithmetic, history, geography, hygiene, and drawing, and certain others specially suited to their sex: namely, needlework, domestic economy, and (in some of the mission schools) lace-making.

Secondary education among girls is chiefly confined to Europeans and native Christians. Few Hindu or Muhammadan girls go beyond the lower secondary stage, the practice of early marriage and the prejudices engendered by the caste and *gosha* (or *parda*) systems obstructing their progress. The only method of meeting this difficulty is by extending *zanāna*, or home, education; and much good work is being done by *zanāna* agencies, such as those of the Free Church of Scotland and Church of England Missions and the National Indian Association.

Perhaps the first attempt to train teachers in India was that made by Dr. Andrew Bell at the end of the eighteenth century. He brought into prominence the mutual or monitorial system of instruction (sometimes also called the 'Madras system') which was the forerunner of the English 'pupil-teacher' system. On returning to England in 1797, he wrote a pamphlet upon it and introduced it into several schools there, of which he was a kind of inspector; and eventually a school was started in Edinburgh on his plan, and the system spread through England and Scotland and was adopted in Europe and America. But a few years' experience revealed its inherent defects, and it has now passed into the limbo of forgotten educational methods.

In 1856 the Government normal school, the nucleus of the present Teachers' College at Saidapet, was started, and it was soon followed by others. Statistics appear in Table XV (p. 361). Other special schools now in existence include three Medical schools with 400 students; the School of Engineering and Surveying, which forms a department of the College of Engineering; and the Government School of Arts in Madras City, which has about 300 pupils. The technical schools include this last, the District board Technical Institutes at Madura and Tinnevelly, the Anjuman for Musalmāns in Madras City, the Art Industrial (mission) schools at Nazareth and Karūr, the Reformatory school at Chingleput, and the Government School of Commerce

at Calicut. Besides this last institution, which has 135 pupils, there are four smaller commercial schools, of which three are managed by missions. The only institution for the study of agriculture is the Agricultural College at Saidapet, which is to be removed to Coimbatore; but the Free Church of Scotland Mission in Chingleput has recently started an experimental school for teaching the subject.

The system of education and the curricula and subjects for Europeans and Eurasians differ little from those for natives. Excepting a few charitable institutions subsidized by Government, such as the asylums in Madras City and Ootacamund, all European schools are maintained either by missions or from charitable endowments. The chief of the endowed institutions are the Doveton college and high school, Bishop Corrie's grammar school, and Bishop Gell's girls' school, all of which are in Madras City. In 1904 there were altogether 103 institutions for Europeans and Eurasians, with 8,700 pupils. Of these, 5 were colleges, 73 secondary schools, 7 special schools, and 18 primary schools. Sixteen Europeans in all passed the different branches of the B.A. degree examination, while nine passed University Medical examinations. A special officer for the inspection of European schools has recently been appointed. European youths after they leave school or college usually seek employment on railways, in shops or mercantile firms, or in the Telegraph department; but those who can afford it qualify as engineers, overseers of works, or medical practitioners. Women generally enter the medical and teaching professions.

Among Muhammadans, education has required special encouragement. The long course of instruction in the Korān enjoined by their religion hampers them in the race with Hindus, and they have been slow to adapt themselves to the changed circumstances which make learning the one road to advancement. In 1860 the Madrasa-i-Azam, established in 1851 by the Nawāb of Arcot, was taken over by Government. The only other high-class institutions for Muhammadans then in Madras were the Mylapore middle school and the Harris school, a missionary institution opened in 1857 with an endowment. In 1872 elementary schools for Musalmāns were established in large Muhammadan centres in the Presidency, and schools for the Māppillas of Malabar were organized and brought under inspection. Muhammadans obtained concessions in the matter of fees and were aided with scholarships, a training school was started in Madras City, and a Deputy-Inspector of Muhammadan schools was appointed. The result of these measures has been a marked advance in the number of Musalmāns at school, and at present the percentage of Muhammadan pupils in primary classes to the population of that religion of school-going age is higher than the corresponding figure among Hindus. In all the higher stages of education, however, the Hindus

are ahead of the Muhammadans, the similar percentages in the secondary classes being 1·69 for Hindus and 1·45 for Musalmāns, and in the collegiate stage 0·09 and 0·03 respectively. Of those who passed the Matriculation, First Arts, and B.A. examinations respectively in 1903–4, 86, 89, and 90 per cent. were Hindus, and only 2, 1, and 2 per cent. were Musalmāns.

Of late years special efforts have been made to educate the depressed classes, or Panchamas as they are officially termed. In 1904, 3,100 schools with 78,000 pupils were maintained for them at a cost of 3·59 lakhs. The hill-tribes in the Agency tracts of the three northern Districts and a number of backward tribes in other localities also now receive particular attention.

The percentage of the total population of school-going age under instruction rose from 7·1 in 1881 to 12 in 1891, 14·7 in 1901, and 16·1 in 1904. At the Census of 1901 it was found that in every 1,000 of the male and female population, 119 and 9 respectively could read and write, but that only 9 and 1 respectively could read and write English. Excluding the exceptional cases of Madras City and the Nīlgiris, the Districts in which education is most advanced are the three rich areas of Tanjore, Malabar, and Tinnevelly, while it is most backward in Salem and Vizagapatam. Of the various communities, the Europeans and Eurasians are by far the most literate. In the education of boys the Brāhmans come next, but their girls are less advanced than those of native Christians. The most backward communities are the Panchamas and the hill-tribes.

Statistics of expenditure upon education appear in Table XV B (p. 362). The fees levied in private institutions differ greatly. The standard rates prescribed, per term, for institutions under public management are as follows:—senior college, Rs. 40; junior college, Rs. 32; the three upper secondary classes, Rs. 19, Rs. 17, and Rs. 15 respectively; the three lower secondary classes, Rs. 11, Rs. 9, and Rs. 7; and the five primary standards, Rs. 4–8, Rs. 3–6, Rs. 2–4, Rs. 1–8, and Rs. 1–2.

Twenty years ago the native papers of Madras were for the most part devoted to religious matters. But of 65 vernacular and diglot newspapers and periodicals now published in the Presidency and its feudatory States less than one-half are devoted to religion, while about a fifth are political, and the remainder deal with literary matters or general and local news. About sixty newspapers and periodicals are published in English. Of the newspapers, the *Madras Mail* and the *Madras Times*, which have a daily circulation of from 3,000 to 4,000 copies each, are the two chiefly read by Europeans and Eurasians; while the *Hindu* (circulation 1,800 daily) is the paper of the educated natives. Musalmāns are represented by the *Muhammadan*, a bi-weekly

with a circulation of 500, and by nine other periodicals published in Hindustāni or Hindustāni and English. Several monthly magazines of repute, among them the *Indian Review* with a circulation of 1,000, deal with current literary and general topics; and, besides the organs of the various religious communities, there are periodicals representing the tea- and coffee-planting interest, the social reform party, the educationists, and others.

Excluding mere republications, the number of books and publications registered in 1904 was 1,125, of which 29 were translations. Nearly one-fourth of these were school textbooks, and more than 400 were religious pamphlets. Of the remainder, 87 (mostly in the vernacular) were poetry and 58 were fiction or dramatic works. The evidence of any original research among them is at present small.

Medical.

Of the medical institutions of the Presidency, the General Hospital at Madras is the largest and the oldest. In 1744 a granary which stood on part of the site now occupied by it was converted into a naval hospital, and an adjoining warehouse was subsequently made into a garrison hospital. Later, the two buildings were transformed into a General Hospital, of which the western half was allotted to the troops in garrison and the eastern to military details, sailors, and European and Eurasian civilians. Natives were accommodated in separate structures on the premises. In 1859 this building was enlarged and an upper storey was built. The eastern half then became the station hospital for the troops in garrison, and the western a civil hospital for European, Eurasian, and native males. In 1897 wards for women and children were added, and in 1899 the eastern portion was handed over to the civil authorities and the institution became for the first time a purely civil hospital. It now includes several separate buildings, among which are quarters for nurses, an operation theatre, the out-patient department, private quarters for native patients, and isolation wards. There are 500 beds, and the average daily number of out-patients is 450. Since about 1870 its punkahs have been pulled by steam, and it is lighted by electricity.

The next oldest medical institution is the Government Ophthalmic Hospital. In 1819 a house was rented in Royapettah, Madras, by the Directors for the 'Eye Infirmary,' as it was then called. In the next year the institution was moved to Vepery, and in 1886 it was transferred to its present excellent quarters. It has 76 beds, and the daily attendance of out-patients is 130.

The Royapettah Hospital, established in 1843, is managed by the municipal corporation, Government paying the salaries of the staff. It has 55 beds for natives, and the average daily number of out-patients is 250.

The Government Maternity Hospital in Madras originated in a

building in Riverside Road erected by public subscription in 1844. Government met the cost of the staff and the dieting of the patients, and the hospital was managed by a committee of six medical officers who gave their services gratuitously. In 1847 a professorship of midwifery was established at the Medical College, and Government then assumed charge of the institution and appointed the professor as its Superintendent. In 1852 two wings were added. In 1881 the institution was moved to the present building in the Pantheon Road. This has since been enlarged and now consists of five blocks, connected by corridors, which contain 140 beds.

Rājā Sir Rāmaswāmi Mudaliyār's Maternity Hospital was built and partly endowed by the gentleman whose name it bears. It was opened in 1880 and then consisted of two wards—one for 'caste,' and the other for 'non-caste,' native patients. Europeans and Eurasians are not usually treated in it. Since its foundation it has several times been enlarged, and it now contains 48 beds, of which about half are usually occupied. It is under the superintendence of a Government medical officer. The Monegar Choultry Fund contributes to the outlay on the institution, and Government supplies medical aid and instruments free.

The Victoria Hospital for 'caste' and *gosha* (or *parda*) women is the latest addition to the larger medical institutions of Madras, and is the only one which is not in any way supported by public funds. It is maintained from the interest on investments and from subscriptions. The scheme for erecting it was started in 1885 under Lady Grant Duff's auspices, and it was built mainly from a donation of a lakh of rupees from the Rājā of Venkatagiri. The hospital was opened in 1890, and in 1902 it was transferred to the Lady Dufferin Fund. It has 64 beds, and the daily attendance of out-patients is 120.

A Pasteur Institute is in course of construction at Coonoọr.

Further statistics of the hospitals of the Presidency are given in Table XVI at the end of this article (p. 363).

The Government Lunatic Asylum at Madras was opened in 1871. It originated in an older institution, the buildings of which were condemned as unsuitable in 1866. It occupies an excellent site nearly 60 acres in extent, contains accommodation for 680 cases, and is in charge of a special officer.

Statistics of the lunatic asylums in the Presidency are given in Table XVI (p. 363). Of the 769 cases admitted during the five years ending 1902, the history of only about one-half was ascertainable. Of this number exactly one-half had become insane from fever, epilepsy, and other physical causes, and nearly one-fourth from various moral causes; in about one-tenth the insanity was hereditary or congenital; and in the remaining one-seventh it was ascribed to the use of intoxicants of various descriptions—chiefly to smoking *gānja*, a preparation

of the hemp-plant. Opium-eating was the cause of five of the 769 cases.

Statistics of vaccination will also be found in Table XVI (p. 363). Formerly inoculation was much practised by native physicians. A healthy person was inoculated with lymph from one suffering from smallpox, and the lymph so produced was employed for subsequent operations. The practice is now prohibited and has virtually ceased. The present Government vaccinators are recruited from many different castes, and not specially from the classes which used to practise inoculation. Animal vaccine is supplied to them in sealed tubes from the King Institute of Preventive Medicine, near Madras City. At this institution bacteriological work and the preparation of various sera are also carried on.

To provide a cheap and readily available remedy for the malaria which infests parts of many Districts the Government sells, at cost price, in all post offices, the quinine made at the Government Cinchona Factory at Naduvattam. Postmasters are allowed a small commission on the sales, and the quinine is made up in 7-grain packets, for which the charge is 3 pies (= one farthing). In 1891–2, the second year in which the system was in operation, 49,600 packets were sold. In 1903–4 the number had risen to 2,050,000.

Efforts for the improvement of village sanitation date from 1871, when the first Local Funds Act recognized the duty of local bodies in the matter. The existing Act of 1884 has emphasized their responsibilities. In the smaller villages want of funds hampers advance, and improvement must depend largely upon the gradual growth of a public opinion upon the subject. But in those larger villages which have been constituted Unions, the house tax and other income raised is spent chiefly upon small sanitary works, such as the daily cleansing of the streets and the improvement of the existing sources of water-supply. The gatherings at religious fairs and festivals were formerly foci of disease, the departing pilgrims carrying the infection contracted at them all over the country. They are now specially watched by the medical officers, who ensure that sanitary precautions are taken.

Surveys.

A topographical survey of the Presidency was made at the beginning of the last century by the Quartermaster-General's department, and the results were embodied in 23 sheets of the Atlas of India on a scale of 4 miles to the inch. In 1858 the Madras Survey department was organized, and it has since surveyed cadastrally, and mapped, all the Government villages except those in hilly areas. The standard scale is 16 inches to the mile; and the maps show the boundaries of every field and all important topographical details, while the field-measurement books from which the maps are plotted and the field registers go farther, giving the actual measurements

of each field, its number, area, tenure, ownership, and so forth. Hilly and forest country, where less detail is required, has been surveyed topographically on scales varying from 4 inches to ½ inch to the mile. These maps show topographical details, but not the boundaries of properties. *Zamīndāri* land has, as a rule, only been surveyed topographically, though in recent years as many as 50 estates with a total area of nearly 2,000 square miles have, at the request of their proprietors, been surveyed cadastrally by the department, and 28 more, with an area of 3,000 square miles, are being surveyed. Of the 141,700 square miles of which the Presidency consists, all but 11,500 square miles has been surveyed either topographically or cadastrally; and, of the remainder, 10,100 square miles consist of hills in the Districts of Madura, Tinnevelly, Malabar, South Kanara, and hills and *zamīndāris* in Ganjām and Vizagapatam, all of which will be topographically surveyed by the Survey of India. The initial survey of the Presidency has thus been almost completed. In addition, Madras City and twenty-seven other large towns have been surveyed and mapped on scales of 160, 80, or 40 inches to the mile, in order to define the limits of private and public properties and check encroachments on the latter.

The village accountants are required to maintain the records-of-rights in their villages; but an attempt to utilize them to keep the village maps up to date in the matter of fresh occupations, transfers of ownership, and so forth has not been successful, partly because of the large arrears of changes which had accumulated before the system was introduced, and partly owing to the difficulty of supervising so large a body of men. Several Districts are now being resurveyed, and a scheme for adequately maintaining the records so obtained has very recently been introduced.

[Further particulars of the Presidency will be found in the *Madras Manual of Administration*, 3 vols. (Madras, 1885 and 1893); the *Census Reports* of 1871, 1881, 1891, and 1901; Talboys Wheeler's *Madras in the Olden Time*, 3 vols. (Madras, 1861–2); Orme's *History of the Military Transactions in Indostan*, 3 vols. (1763–8); Col. W. J. Wilson's *History of the Madras Army*, 5 vols. (Madras, 1882–9); Sir A. Arbuthnot's *Minutes, &c., of Sir Thomas Munro*, 2 vols. (1881); the *Reports of the Archaeological Survey of India*; Mr. Srīnivāsarāghava Ayyangār's *Forty Years' Progress in Madras* (Madras, 1893); and Mr. J. J. Cotton's *List of Inscriptions on Tombs, &c.* (Madras, 1903). The several Districts are described in the *Manuals* or *Gazetteers* for each. Particulars of the work of the different departments are given in their respective annual reports.]

TABLE I

Distribution of Population, Madras Presidency, 1901

Natural Divisions, Districts, and States.	Area in square miles.	Number of towns.*	Number of villages.	Total Population.			Urban Population.*			Persons per square mile in rural areas.*
				Persons.	Males.	Females.	Persons.	Males.	Females.	
East Coast and Agencies.										
Ganjām	8,372	8	6,145	2,010,256	961,886	1,048,370	97,531	45,341	52,190	240
Vizagapatam	17,222	12	12,032	2,933,650	1,450,367	1,483,283	196,545	95,028	101,517	170
Godāvari †	7,972	13	2,665	2,301,759	1,131,722	1,170,037	226,414	109,648	116,766	289
Kistna †	8,498	13	1,818	2,154,803	1,090,301	1,064,502	185,416	92,226	93,190	254
Nellore †	8,761	10	1,758	1,496,987	752,517	744,470	121,572	60,243	61,329	171
Total	50,825	56	24,418	10,897,455	5,386,793	5,510,662	827,478	402,486	424,992	214
Deccan.										
Cuddapah	8,723	10	1,237	1,291,267	655,818	635,449	118,839	59,116	59,723	148
Kurnool	7,578	3	751	872,055	440,615	431,440	47,015	23,166	23,849	115
Bellary	5,714	10	929	947,214	480,876	466,338	171,195	86,686	84,509	156
Anantapur	5,557	11	684	788,254	403,356	384,898	112,430	57,117	55,313	142
Total	27,572	34	3,601	3,898,790	1,980,665	1,918,125	449,479	226,085	223,394	139
South.										
Madras City	27	1	..	509,346	256,730	252,616	509,346	256,730	252,616	..
Chingleput	3,079	15	2,144	1,312,122	661,431	650,691	189,422	94,692	94,730	426
North Arcot	7,386	12	3,912	2,207,712	1,100,816	1,106,896	169,554	81,156	88,398	299
Salem	7,530	11	3,782	2,204,974	1,085,532	1,119,442	176,366	84,777	91,589	284
Coimbatore	7,860	10	1,435	2,201,752	1,083,050	1,118,702	156,666	76,697	79,969	274
South Arcot	5,217	10	2,745	2,349,894	1,168,167	1,181,727	171,935	84,329	87,606	442
Tanjore	3,710	19	2,510	2,245,029	1,066,423	1,178,606	352,641	167,322	185,319	561
Trichinopoly	3,632	5	932	1,444,770	699,839	744,931	155,553	75,472	80,081	370
Madura	8,701	21	4,113	2,831,280	1,357,056	1,474,224	346,882	167,132	179,750	313
Tinnevelly	5,389	29	1,482	2,059,607	1,001,799	1,057,808	472,579	229,498	243,081	382
Total	52,531	133	23,055	19,366,486	9,480,843	9,885,643	2,700,944	1,317,805	1,383,139	349
West Coast.										
Nilgiris	957	2	48	111,437	60,550	50,887	27,121	14,183	12,938	116
Malabar	5,795	7	2,213	2,800,555	1,383,917	1,416,638	218,007	110,529	107,478	470
South Kanara	4,025	2	1,275	1,134,713	548,516	586,197	52,149	26,604	25,545	282
Total	10,777	11	3,536	4,046,705	1,992,983	2,053,722	297,277	151,316	145,961	369
British Territory, Total	141,705	234	54,610	38,209,436	18,841,284	19,368,152	4,275,178	2,097,692	2,177,486	261
Feudatory States.										
Travancore	7,091	9	3,885	2,952,157	1,490,165	1,461,992	183,835	93,629	90,206	416
Cochin	1,362	7	652	812,025	405,200	406,825	87,478	45,389	42,089	596
Pudukkottai	1,100	1	377	380,440	180,794	199,646	20,347	9,949	10,398	346
Banganapalle	255	..	63	32,264	16,231	16,033		..	..	127
Sandūr	161	..	20	11,200	5,658	5,542		..	..	70
Feudatory States, Total	9,969	17	4,097	4,188,086	2,098,048	2,090,038	291,660	148,967	142,693	420
GRAND TOTAL	151,674	251	59,607	42,397,522	20,939,332	21,458,190	4,566,838	2,246,659	2,320,179	272

* The places shown in column 3 are those which were treated as 'towns' at the Census of 1901. Their population is given in columns 8–10. The rural areas of the last column exclude only such of these as had over 50,000 inhabitants.

† The limits of these three Districts have recently been altered (see p. 236); and a slight change made in Malabar also (p. 236).

TABLE II. Temperature, Madras Presidency

Station.	Height in feet of Observatory above sea-level.	Average temperature in degrees (Fahrenheit) in							
		January.		May.		July.		November.	
		Mean.	Diurnal range.	Mean.	Diurnal range.	Mean.	Diurnal range.	Mean.	Diurnal range.
Vizagapatam (Waltair)	226	74·9	12·9	86·7	11·0	84·8	11·0	78·5	12·3
Cocanāda	26	73·8	15·5	91·4	17·8	85·4	12·3	77·0	12·7
Nellore	71	76·6	19·7	93·9	24·0	88·6	17·3	79·[illegible]	14·7
Cuddapah	433	76·8	23·5	94·6	22·2	86·6	17·3	78·6	18·2
Madras	22	76·2	17·5	89·6	17·2	87·3	17·0	76·7	16·9
Madura	447	78·3	18·9	88·8	22·6	84·8	24·8	80·0	14·7
Coimbatore	1,348	75·6	22·8	84·3	21·6	79·4	17·4	77·6	17·3
Calicut	27	78·7	17·6	84·2	12·5	78·2	8·7	80·4	13·9
Trivandrum (Travancore)	198	77·5	12·0	81·6	9·7	77·6	8·6	77·6	10·1
Wellington (Nīlgiris)	6,200	56·5	22·7	67·1	18·2	64·5	13·3	59·6	15·4

NOTE.—The diurnal range is the average difference between maximum and minimum temperatures of each day.

TABLE III. Rainfall, Madras Presidency

Station.	Average rainfall (in inches) for twenty five years ending with 1901 in												Total of year.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Vizagapatam (Waltair)	0·32	0·41	0·36	0·59	2·88	3·69	4·45	5·05	7·90	9·85	5·87	1·60	42·97
Cocanāda	0·14	0·51	0·43	0·49	1·96	4·21	5·81	5·86	6·19	8·87	5·59	0·89	40·95
Nellore	0·38	0·09	0·17	0·32	1·33	1·31	2·31	3·01	3·83	9·01	11·71	2·82	36·29
Cuddapah	0·15	0·17	0·12	0·52	1·75	3·14	4·04	5·80	6·12	5·51	3·71	1·06	32·09
Madras	0·50	0·31	0·18	0·48	1·64	2·12	3·91	5·13	4·93	11·14	13·97	6·20	50·51
Madura	0·26	0·48	0·50	2·36	2·86	1·22	1·94	3·61	5·22	8·53	4·78	2·16	33·92
Coimbatore	0·38	0·43	0·46	1·76	2·21	1·75	1·15	1·12	1·53	6·29	3·44	1·17	21·69
Calicut	0·18	0·16	0·57	4·28	9·74	35·77	27·91	16·32	7·67	10·50	4·66	1·05	118·81
Trivandrum (Travancore)*	0·43	1·01	1·48	4·98	5·59	12·58	6·48	3·64	2·78	11·02	6·02	2·47	58·48
Wellington (Nīlgiris)	1·05	1·44	2·39	3·59	3·66	3·47	3·48	3·97	5·71	11·06	6·89	3·94	50·65

* The figures here for January to August are for twelve years and for the other months for thirteen years.

TABLE IV

STATISTICS OF AGRICULTURE, MADRAS PRESIDENCY

(In square miles)

	Average, 1884–5 to 1889–90.	Average, 1890–1 to 1899–1900.	1900–1.	1903–4.
Government	87,519	87,937	88,225	88,623
Minor *ināms*	12,456	7,119	6,773	6,616
Whole *ināms*		5,291	5,513	5,498
Zamīndāris	42,773	40,708	40,945	41,033
Total area by professional survey	142,748	141,055	141,456	141,770
Forests	14,789	17,734	19,353	19,484
Not available for cultivation	19,277	19,863	19,747	19,442
Cultivable waste other than fallow	13,811	10,795	9,780	8,555
Current fallows	7,983	9,092	9,005	8,966
Net area cropped	35,698	37,300	38,297	40,422
Total area shown in village accounts	91,558	94,784	96,182	96,869
Irrigated from Government canals	3,972	4,067	4,378	4,388
Irrigated from private canals	42	44	39	37
,, tanks	3,569	3,098	2,939	3,381
,, wells	1,494	1,705	1,730	1,677
,, other sources	367	223	244	273
Total area irrigated	9,444	9,137	9,330	9,756
Food crops.				
Rice	9,225	10,255	10,300	12,139
Cholam	6,133	7,120	7,464	6,374
Cambu	3,864	4,206	4,634	4,533
Rāgi	2,367	2,605	2,613	2,484
Other food-grains, including pulses	8,572	9,092	9,848	10,759
	30,161	33,278	34,859	36,289
Industrial crops.				
Gingelly	841	1,119	1,328	1,338
Other oilseeds	1,237	1,545	1,514	1,916
Condiments and spices	481	527	650	645
Sugars	122	186	188	189
Cotton	2,277	2,322	2,145	2,717
Coffee	94	98	100	80
Tobacco	128	158	184	209
Miscellaneous	1,909	2,414	2,538	2,742
Total area cropped	37,250	41,647	43,506	46,125
Deduct area cropped more than once	2,561	4,347	5,209	5,723
Net area cropped	34,689	37,300	38,297	40,402

NOTE.—Except the first five items, the figures in this table relate to *ryotwāri*, 'minor *inām*,' and the greater part of the 'whole *inām*' land. Rice is usually irrigated, sugar-cane always, and *cholam* and *rāgi* sometimes.

TABLE V

Financial Results of Irrigation Works, Madras Presidency

(In lakhs of rupees)

	Average, 1881–90.	Average, 1891–1900.	1900–1.	1903–4.
Major Works.				
Receipts	43	69	82	82
Expenditure	29	44	46	49
Net profits	14	25	36	33
Percentage of net profits to capital outlay	2·6	3·4	4·8	4·3
Minor Works for which capital and revenue accounts are kept.				
Receipts	3	10	9	12
Expenditure	3	4	4	5
Net profits	...	6	5	7
Percentage of net profits to capital outlay	...	3·0	2·5	3·6
Other Minor Works.				
Receipts	75	74	80	96
Expenditure	15	18	18	22

TABLE VI

Wages and Prices, Madras Presidency

	Average for ten years ending 1880.	Average for ten years ending 1890.	Average for ten years ending 1900.	1903.
Daily Wages.				
Skilled labour :—				
In towns . . Rs.	0 7 6	0 8 1	0 8 4	0 8 3
In rural tracts . ,,	?	0 6 11	0 7 2	0 6 11
Unskilled ordinary labour :—				
In towns . . Rs.	0 2 10	0 2 11	0 3 2	...
In rural tracts . ,,	?	0 2 5	0 2 8	0 2 7
Cart hire :—				
In towns . . Rs.	0 6 0	0 4 9	0 5 2	0 5 0
In villages . . ,,	0 3 0	0 3 8	0 3 8	0 4 0
Prices [seers (2 lb.) per rupee].				
Second quality rice	14·3	15·0	11·5	12·7
Cholam	22·7	29·1	19·7	26·3
Cambu	23·1	27·6	19·8	26·6
Rāgi	24·4	30·2	21·3	25·9
Salt	14·3	13·4	12·3	12·8
Cotton piece-goods (per seer):—				
European . . Rs.	...	1 13 0	2 3 0	2 4 0
Indian . . . ,,	...	1 11 0	1 7 0	1 5 0

Note.—Prices include those in years of famine.

TABLE VII

Trade of the Madras Presidency with other Provinces

(In thousands of rupees)

	By sea (exclusive of Government stores).			By rail.		
	1890-1.	1900-1.	1903-4.	1890-1.	1900-1.	1903-4.
Imports.						
Coal	2,24	21,66	17,76	2,50	26,05	14,01
Cotton, raw	2,95	10,21	4,52	28,65	20,16	37,46
Cotton piece-goods	42,77	40,95	36,50	8,11	21,71	40,92
Cotton twist and yarn	36,71	20,91	26,91	19,00	73,83	80,40
Dyeing and tanning materials	3,23	4,93	4,50	16,18	40,52	7,98
Grain and pulse	1,14,13	3,06,98	1,05,75	73,70	34,34	51,12
Hides and skins	5,94	3,00	3,80	1,07,72	1,73,70	1,04,02
Leather	73	38	1	1,29	1,52,67	87,42
Metals	19,70	11,92	15,98	7,47	18,48	19,58
Oils and oilseeds	1,86	17,70	32,85	23,10	30,64	53,58
Provisions	1,69	5,31	3,77	63,91	14,35	18,12
Salt	38,94	33,64	28,88	1,69	6,88	3,80
Silk	14,47	3,34	49	14,25	31,10	36,89
Spices	3,19	3,38	2,88	19,21	32,65	38,39
Wood and timber	12,83	23,44	29,23	*	6,19	4,85
All other articles	88,85	79,25	88,61	55,88	73,40	83,26
Total	3,90,23	5,87,00	4,02,44	4,42,66	7,56,67	6,81,80
Treasure	4,04	1,07	4,50	*	64,08	69,26
Exports.						
Coal and coke	...	...	...	4,55	29,87	16,65
Cotton, raw and manufactured	18,95	23,00	31,17	87,75	98,69	89,54
Drugs, medicines, and narcotics	2,49	1,59	2,19	4,45	21,86	4,35
Fruits and vegetables	41,60	39,03	33,46	*	6,84	4,16
Grain and pulse	14,75	14,41	48,49	14,52	2,17,65	84,07
Metals	20	1,28	83	16,90	23,59	24,56
Oils	31,50	69,96	80,27	4,83	17,20	17,08
Provisions	11,91	16,51	13,28	51,63	89,96	72,89
Salt	1,00	2,26	3,56	3,71	37,41	32,21
Seeds	42,57	27,02	22,89	4,37	8,39	9,61
Spices	28,76	48,06	45,05	22,85	37,45	36,18
Sugar	21,25	22,62	19,81	25,89	40,95	40,50
Tobacco	13,60	20,32	21,11	11,21	23,83	36,56
All other articles	74,09	74,99	54,77	1,16,94	1,37,87	1,60,31
Total	3,02,67	3,61,05	3,76,88	3,69,60	7,91,56	6,28,67
Treasure	13	2,25	...	*	75,58	98,49

* Not registered.

TABLE VII A

Foreign Trade of the Madras Presidency, exclusive of Government Stores and Treasure

(In thousands of rupees)

	1890–1.	1900–1.	1903–4.
Imports.			
Apparel	21,13	20,81	29,04
Cotton twist and yarn	1,07,71	81,86	65,30
Cotton piece-goods, &c.	1,90,12	1,91,35	2,08,25
Hardware and cutlery	15,38	16,46	21,71
Liquors	19,69	20,47	22,45
Machinery and millwork	16,58	26,68	22,77
Metals	48,40	61,01	74,44
Oils	17,14	40,07	49,80
Railway plant and rolling stock	58,06	26,90	53,04
Spices	23,38	21,66	23,84
All other articles	1,04,34	1,55,13	1,80,84
Total	6,21,93	6,62,40	7,51,48
Treasure	32,38	79,71	1,31,80
Exports: Indian and Foreign Goods.			
Coffee	1,35,62	1,20,51	1,36,27
Coir, yarn and rope	17,55	40,28	48,13
Cotton, raw	2,33,53	1,53,96	2,56,52
Cotton twist and yarn	19,26	3,55	6,36
Cotton piece-goods, &c.	45,58	93,30	82,75
Grain and pulse	63,33	52,54	1,58,67
Hides and skins	2,00,66	3,68,61	2,71,85
Indigo	89,41	39,26	38,40
Oil-cake	5,50	23,81	30,35
Seeds	82,65	28,58	1,33,23
Spices	33,88	33,95	62,15
Sugar	38,42	14,03	8,31
Tea	8,05	32,43	51,74
All other articles	98,00	1,70,16	2,24,59
Total	10,71,44	11,74,97	15,09,32
Treasure	18,58	28,58	12,81

TABLE VIII

Post Office Transactions, Madras Presidency

	1880-1.	1890-1.	1900-1.	1903-4.
Number of post offices	688	1,400	2,042	3,151
Number of letter boxes	*1,337	*2,156	3,855	5,933
Number of miles of postal communication	*13,678	13,486	17,870	23,471
Number of postal articles delivered:				
Letters	*20,929,335	*34,243,544	37,600,449	56,149,652
Postcards	*2,644,551	*16,876,636	30,022,554	46,974,616
Packets	*482,530	*2,459,083	†4,561,509	†6,786,338
Newspapers	*2,268,240	*4,229,776	‡3,839,435	‡5,205,850
Parcels	*127,124	*302,507	343,856	771,082
Value of stamps sold to the public	Rs. *8,56,380	Rs. *17,06,630	Rs. 21,78,845	Rs. 30,67,290
Value of money orders issued	*56,78,520	*1,91,46,260	2,44,98,683	3,92,60,978
Total amount of Savings Bank deposits	...	51,71,146	65,78,716	68,64,120

* These figures include those for Coorg, Mysore, and the post offices in the Hyderābād State which are included in the Madras postal circle.
† Including unregistered newspapers. ‡ Registered as newspapers in the Post Office.

TABLE IX

Statistics of Civil Justice, Madras Presidency

	Average for ten years ending		1901.	1904.
	1890.	1900.		
Suits for money and movable property	203,948	270,894	288,610	283,162
*Title and other suits	39,766	48,814	49,087	44,010
Rent suits	5,019	8,498	10,340	7,567
Total	248,733	328,206	348,037	334,739

* Including applications for ejectment of tenants presented in the Presidency Court of Small Causes.

Statistics of Criminal Justice, Madras Presidency

	Average for ten years ending		1901.	1904.	Percentage of convictions, 1904.
	1890.	1900.			
Number of persons tried:					
(a) For offences against person and property	157,797	192,156	170,193	166,987	15·7
(b) For other offences against the Indian Penal Code	36,025	56,744	54,005	56,327	42·7
(c) For offences against Special and Local laws	119,406	208,087	243,914	230,347	85·7
Total	313,228	456,987	468,112	453,661	54·6

Note.—These figures exclude persons tried by Village Magistrates.

TABLE X

Principal Sources of Revenue, Madras Presidency

(In thousands of rupees)

	Average for ten years ending March 31, 1890.		Average for ten years ending March 31, 1900.		Year ending March 31, 1901.		Year ending March 31, 1904.	
	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.	Total amount raised in Province (Imperial, Provincial, and Local).	Amount credited to Provincial Revenues.
Land revenue .	4,80,93	1,33,45	5,31,97	1,57,95	5,82,68	1,55,47	6,06,29	2,39,78
Salt . .	1,49,22	98	1,81,43	1,34	1,86,26	1,06	1,95,36	94
Stamps . .	57,73	35,08	76,81	57,61	85,66	64,24	84,58	63,43
Excise . .	83,18	34,13	1,33,79	33,45	1,35,90	33,97	1,77,02	44,26
Customs .	14,96	30	30,44	59	37,52	92	53,92	85
Assessed taxes	9,53	4,32	23,96	11,03	29,51	13,79	25,83	12,02
Forests . .	11,46	12,40	19,87	11,68	23,40	11,70	26,58	13,29
Registration .	7,82	4,49	12,57	6,29	14,48	7,24	15,38	7,69
Other sources .	61,79	20,39	1,85,48	35,44	2,47,31	40,02	2,88,54	42,58
Total	8,76,62	2,45,54	11,96,32	3,15,38	13,42,72	3,28,41	14,73,50	4,24,84

TABLE X A

Principal Heads of Provincial Expenditure, Madras Presidency

(In thousands of rupees)

	Average for ten years ending March 31, 1890.	Average for ten years ending March 31, 1900.	Year ending March 31, 1901.	Year ending March 31, 1904.
Opening balance	30,49	37,82	5,67	42,71
Charges in respect of collections (principally Land Revenue and Forests)	62,24	73,54	77,42	81,00
Salaries and expenses of civil departments :—				
(*a*) General administration	10,17	10,02	10,07	10,92
(*b*) Law and Justice	48,45	55,81	61,47	60,90
(*c*) Police	38,16	44,31	46,84	49,95
(*d*) Education	11,78	16,36	17,68	21,32
(*e*) Medical	10,13	13,15	13,44	14,01
(*f*) Other heads	4,51	5,80	7,55	9,06
Pensions and miscellaneous civil charges	19,67	25,17	29,05	34,05
Famine relief	1,93	2,83	1,12	...
Irrigation	11,90	34,97	34,90	45,72
Civil public works	21,60	28,05	25,43	32,64
Other charges and adjustments	5,10	11,63	6,65	12,86
Total expenditure	2,45,64	3,21,64	3,31,62	3,72,43
Closing balance	37,75	30,41	2,46	95,12

NOTE.—Owing to changes in the items of revenue and expenditure debited to Provincial funds and to other causes, the averages shown above are in some cases for less than ten years.

TABLE XI

INCOME AND EXPENDITURE OF LOCAL BOARDS, MADRAS PRESIDENCY

	Average for ten years, 1891–1900.	1900–1.	1903- 4.
Income.	Rs.	Rs.	Rs.
Cess on land	48,84,416	52,64,603	57,59,115
House tax	3,30,340	4,63,284	5,81,254
School fees	1,97,879	2,22,968	2,55,[illegible]86
Markets and choultries	3,92,076	4,40,493	5,20,368
Tolls and ferries	9,22,085	9,62,718	10,56,418
Other sources of income	9,75,950	10,19,964	19,67,559
Total	77,02,746	83,74,030	1,01,40,700
Expenditure.			
Roads and buildings	42,11,697	44,21,642	56,49,602
Education	10,78,760	10,25,644	13,13,557
Medical, vaccination, and sanitation	14,17,730	15,16,739	20,64,820
Public and charitable institutions	3,02,074	2,92,690	3,11,172
Supervision and management	3,63,681	4,39,180	4,41,520
Contributions	3,21,308	3,10,155	2,30,908
Total	76,95,250	80,06,050	1,00,11,579

TABLE XII

INCOME AND EXPENDITURE OF MUNICIPALITIES, MADRAS PRESIDENCY

	Average for ten years, 1891–1900.	1900–1.	1903-4.
Income.	Rs.	Rs.	Rs.
Tax on houses and lands	6,67,544	8,57,088	9,44,393
,, vehicles and animals	1,62,913	1,98,[illegible]87	2,32,306
,, professions and trades	2,08,612	1,95,956	2,07,149
Tolls	3,54,510	3,97,944	4,16,894
Water rate	54,708	1,53,750	1,78,062
Fees and revenue from educational institutions	97,586	1,23,797	1,46,120
Fees and revenue from markets and slaughter-houses	1,56,909	2,13,917	2,31,300
Grants and contributions from Government, local boards, &c.	4,19,794	2,83,508	6,45,980
Other sources of revenue	3,14,418	4,17,162	4,52,433
Total	24,36,994	28,41,509	34.54,637
Expenditure.			
General administration	2,03,547	2,47,917	2,65,877
Conservancy	5,36,059	7,15,071	9,49,534
Hospitals and dispensaries	2,60,605	3,09,074	3,39,160
Public works	3,99,709	4,55,972	5,73,528
Education	3,17,259	3,[illegible]6,822	3,90,223
Other items of expenditure	7,38,213	9,32,303	8,81,753
Total	24,55,392	30,07,159	34,00,075

TABLE XIII

Statistics of Police, Madras Presidency

	1881.	1891.	1901.	1904.
Supervising Staff.				
District and Assistant Superintendents	46	46	61	58
Inspectors	420	382	383	388
Subordinate Staff.				
Sub-Inspectors and European constables	148	51	68	71
Head constables and sergeants	2,700	2,462	2,573	2,657
Constables	22,993	18,089	19,503	21,243
Rural police (*ghāt talaiyāris*) paid from the police budget	427	174	104	104
Total cost of the force Rs.	39,73,460	38,05,217	44,28,363	47,77,336

Note.—Besides the force shown above, there are rural police (*talaiyāris*) who are controlled by the Revenue department and are paid from other than Police funds. These numbered 23,701 in 1903-4.

TABLE XIV

Statistics of Jails, Madras Presidency

	1881.		1891.		1901.		1904.	
Number of Central jails	7		7		7		7	
Number of District jails	25		15		10		10	
Number of Subsidiary jails	300		308		303		304	
Average daily jail population :—								
(*a*) Male.								
In Central jails	5,806		5,208		7,209		6,176	
In other jails	5,063		4,308		5,501		4,563	
(*b*) Female.								
In Central jails	213		139		152		122	
In other jails	319		164		158		115	
Total	11,401		9,819		13,020		10,976	
Rate of jail mortality per 1,000	39		35		22		16	
	Rs.	a.	Rs.	a.	Rs.	a.	Rs.	a.
Expenditure on jail maintenance	7,59,645	0	6,63,215	0	8,95,248	0	7,18,145	0
Cost per prisoner	71	11	67	11	68	12	65	7
Profits on jail manufactures	94,821	0	66,269	0	1,39,953	0	1,32,652	0
Earnings per prisoner	8	15	6	12	10	12	12	1

Note.—The last four items for the year 1881 exclude subsidiary jails.

TABLE XV

Colleges, Schools, and Scholars, Madras Presidency

Class of institutions.	1880-1. Number of institutions.	1880-1. Scholars. Males.	1880-1. Scholars. Females.	1890-1. Number of institutions.	1890-1. Scholars. Males.	1890-1. Scholars. Females.	1900-1. Number of institutions.	1900-1. Scholars. Males.	1900-1. Scholars. Females.	1903-4. Number of institutions.	1903-4. Scholars. Males.	1903-4. Scholars. Females.
Public.												
Arts colleges	25	1,559	...	35	3,200	5	41	3,247	32	40	4,203	37
Professional colleges	3	162	...	5	510	8	6	632	4	6	45	12
Secondary schools—												
Upper secondary	84	4,311	38	178	24,604	2,548	172	34,799	2,505	195	50,070	2,857
Lower secondary	436	15,642	377	637	25,649	17,714	560	34,887	18,935	567	41,464	19,548
Primary schools—												
Upper primary } Lower primary }	12,293	272,619	31,790	17,885	442,969	62,311						
Upper primary							5,164	200,066	47,791	5,299	224,647	54,310
Lower primary							15,141	327,945	45,825	14,758	344,756	48,823
Training schools	29	688	125	70	1,174	253	74	1,257	355	76	1,280	377
Other special schools	8	486	11	29	1,993	199	57	3,116	811	67	3,109	653
Private.												
Advanced	...	...	...	131	3,952	122	246	5,373	104	291	6,556	92
Elementary	...	...	...	3,058	52,398	4,555	5,465	101,829	11,711	5,472	107,791	12,430
Total	12,878	295,467	32,341	22,028	556,449	87,715	26,926	722,151	128,073	26,771	784,621	139,139

TABLE XV A

Results of University Examinations, Madras Presidency

	1880-1.	1890-1.	1900-1.	1903-4
Passes in				
Matriculation . . .	1,131	2,381	2,427	1,521
First Arts	423	740	730	1,067
B.A. degree examination—				
English language division	} 113	} 230	488	580
Second language division			516	579
Science division . .		316	449	535
M.A.	5	6	19	12
L.T.	...	7	Written 70 Practical 51	45 51
B.L.	7	39	141	66
M.L.	2	1	1	1
L.M. & S.	8	17	...	5
M.B. & C.M. . . .	2	1	...	6
M.D.	...	...	...	...
B.C.E. or B.E. . . .	1	1	Civil 3 Mechanical 3	4 3

NOTE.—These figures show all the results at the Madras University, including students from outside the Presidency.

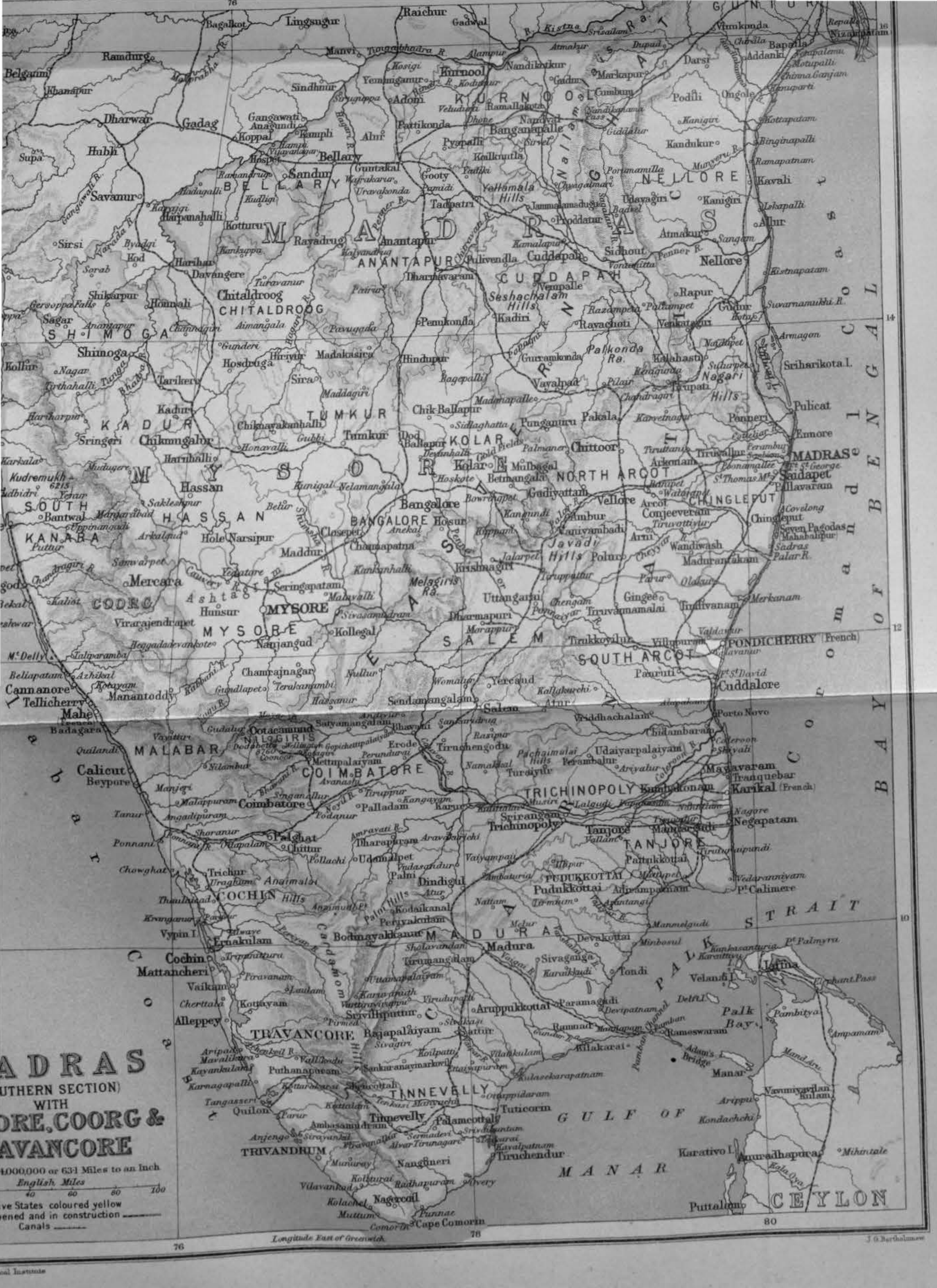
TABLE XV B

Educational Finance, Madras Presidency

	Expenditure on institutions maintained or aided by public funds from				Total.
	Provincial revenues.	District and municipal funds.	Fees.	Other sources.	
	Rs.	Rs.	Rs.	Rs.	Rs.
Arts and Professional colleges: 1900-1	4,35,888	1,727	2,67,822	1,54,122	8,59,559
1903-4	4,12,023	...	3,29,341	1,35,622	8,76,986
Training and special schools: 1900-1	2,16,332	90,313	23,755	96,476	4,26,876
1903-4	3,06,147	44,332	28,134	1,14,011	4,92,624
Secondary boys' schools: 1900-1	2,31,668	66,130	8,86,683	3,59,854	15,44,335
1903-4	2,54,858	64,736	10,61,076	3,25,166	17,05,836
Primary boys' schools: 1900-1	1,61,023	6,86,998	4,26,370	3,86,588	16,60,979
1903-4	2,74,269	9,25,981	4,28,745	4,35,394	20,64,389
Girls' schools: 1900-1	2,72,403	9,039	88,158	3,94,157	7,63,757
1903-4	3,63,067	5,878	87,937	3,87,427	8,44,309
Total 1900-1	13,17,314	8,54,207	16,92,788	13,91,197	52,55,506
Total 1903-4	16,10,364	10,40,927	19,35,233	13,97,620	59,84,144

NOTE.—The expenditure on 'Unaided' and 'Private' institutions is excluded.


MADRAS
(NORTHERN SECTION)
Scale = 1:4,000,000 or 63·1 Miles to an Inch
English Miles
Native States coloured yellow
Railways opened and in construction
Canals
BAY OF BENGAL
Northern Circars
EASTERN GHATS
VIZAGAPATAM
GANJAM
GODAVARI
KISTNA
GUNTUR
KURNOOL
NELLORE
MADRAS
HYDERABAD
NAGPUR
Bhandara
Dongargarh
Raj Nandgaon
Sonpur
Rampur
Telcher
Amraoti
Akola
Wardha
Bolangir
Hindol
Baramba
Ajanta Range
Yeotmal
Basim
Chanda
Adilabad
Rajura
Nirmal Range
Nander
Nirmal
Nizamabad
Sironcha
Karimnagar
Warangal
Bidar
Sangareddipet
Secunderabad
Khammamett
Nalgonda
Mahbubnagar
Raichur
Kurnool
Jagdalpur
Jeypore
Parvatipuram
Bobbili
Vizianagram
Chicacole
Calingapatam
Bimlipatam
Waltair
Vizagapatam
Berhampur
Gopalpur
Ichchapuram
Rajahmundry
Cocanada
Coringa
Yanam (Fr.)
Ellore
Bezwada
Guntur
Masulipatam
Narasapur
Mouths of the Godavari
Mouths of the Kistna
Ongole
Kavali
Kandukur
Podili
Cumbum
Markapur
Nandikotkur
Gooty
Tadpatri
Anantapur
Udayagiri
Kanigiri
Nallamalai Hills
Yellamala Hills
Kistna R.
Godavari R.



ADRAS
UTHERN SECTION)
WITH
ORE, COORG &
AVANCORE
4,000,000 or 63·1 Miles to an Inch
English Miles
ve States coloured yellow
ened and in construction
Canals
Longitude East of Greenwich
J. G. Bartholomew
MADRAS
MYSORE
BAY OF BENGAL
Coromandel Coast
Malabar Coast
GULF OF MANAR
PALK STRAIT
Palk Bay
CEYLON
BELLARY
KURNOOL
NELLORE
ANANTAPUR
CUDDAPAH
CHITALDROOG
SHIMOGA
KADUR
TUMKUR
KOLAR
NORTH ARCOT
CHINGLEPUT
HASSAN
SOUTH KANARA
BANGALORE
COORG
MYSORE
SALEM
SOUTH ARCOT
MALABAR
NILGIRIS
COIMBATORE
TRICHINOPOLY
TANJORE
PUDUKKOTTAI
MADURA
COCHIN
TRAVANCORE
TINNEVELLY
Madras
Pondicherry (French)
Karikal (French)
Mahe (French)
Bangalore
Mysore
Mercara
Calicut
Cochin
Trivandrum
Cape Comorin
Madura
Tanjore
Trichinopoly
Cuddalore
Negapatam
Tuticorin
Jaffna
Rameswaram
Adam's Bridge
Bellary
Kurnool
Nellore
Cuddapah
Anantapur
Salem
Coimbatore
Ootacamund
Palghat
Quilon
Alleppey
Cannanore
Tellicherry
Dharwar
Hubli
Belgaum
Raichur
Vellore
Chittoor
Conjeeveram
Chingleput
Pulicat
Sriharikota I.

TABLE XVI

STATISTICS OF HOSPITALS, LUNATIC ASYLUMS, AND VACCINATION, MADRAS PRESIDENCY

	1881.	1891.	1901.	1904.
Hospitals, &c.				
Number of civil hospitals and dispensaries . .	255	432	*480	*512
Average daily number of—				
(*a*) In-patients . .	1,927	2,470	2,923	2,857
(*b*) Out-patients . .	10,619	18,447	28,313	31,283
Income from—				
(*a*) Government payments . . Rs.	2,79,736	3,65,914	4,31,127	5,58,646
(*b*) Local and Municipal payments . Rs.	4,62,235	7,12,286	9,40,586	11,28,703
(*c*) Fees, endowments, and other sources Rs.	51,163	59,686	1,27,031	1,39,261
Expenditure on—				
(*a*) Establishments Rs.	3,85,975	5,54,162	7,78,641	8,53,353
(*b*) Medicines, diet, buildings, &c. . . Rs.	3,92,279	5,84,505	7,10,138	9,67,037
Lunatic Asylums.				
Number of asylums .	3	3	3	3
Average daily number of—				
(*a*) Criminal lunatics .	61	145	146	150
(*b*) Other lunatics . .	290	469	417	449
Income from—				
(*a*) Government payments . . Rs.	59,587	1,35,898	94,786	98,841
(*b*) Fees and other sources . . Rs.	16,855	6,499	29,208	40,381
Expenditure on—				
(*a*) Establishment . Rs.	28,212	30,577	38,946	43,567
(*b*) Diet, buildings, &c. Rs.	33,060	1,04,615	58,893	73,421
Vaccination.†				
Population among whom vaccination was carried on	30,868,504	35,651,577	38,227,818	38,227,818
Number of successful operations . . .	523,165	852,416	1,078,173	1,128,341
Ratio per 1,000 of population	17	24	28	29
Total expenditure on vaccination . . Rs.	1,56,656	2,04,955	2,57,975	2,63,421
Cost per successful case Rs.	0 4 9	0 3 10	0 3 10	0 3 9

* Includes the Residency Hospital, Trivandrum.
† Excludes vaccination in cantonments and dispensaries and by medical subordinates, for which complete statistics are not available.

Madras City.—The capital of the Madras Presidency, and the third largest town in the Indian empire, is built in a straggling fashion on a strip of land 9 miles long, from 2 to 4 miles wide, and 27 square miles in extent, on the shore of the Bay of Bengal, in 13° 4′ N. and 80° 15′ E.

Description.

The site is low-lying and almost dead level, its highest point being only 22 feet above the sea; and it is intersected by two languid streams, the Cooum and the Adyar, of which the former enters the sea immediately south of Fort St. George, in the centre of the city, and the latter near the southern boundary. Neither of them carries enough water to maintain a clear channel, and except in the rains they both form salt lagoons separated from the sea by narrow ridges of sand.

Strangers to the city find it difficult to realize that they are in a place as populous as Manchester. Approached from the sea, little of Madras is visible except the first row of its houses; the railways naturally enter by way of the least crowded parts; and the European quarter is anything but typically urban in appearance. Most of the roads in this part run between avenues, and are flanked by frequent groves of palms and other trees; the shops in the principal thoroughfare, the wide Mount Road, though many of them are imposing erections, often stand back from the street with gardens in front of them; the better European residences are built in the midst of compounds which almost attain the dignity of parks; and rice-fields frequently wind in and out between these in almost rural fashion. Even in the most thickly peopled native quarters, such as Black Town and Triplicane, there is little of the crowding found in many other Indian towns, and houses of more than one storey are the exception rather than the rule.

The reason for all this lies in the fact that in Madras, if we except the sea on the east, there are none of the natural obstacles to lateral extension such as hem in Calcutta and Bombay. Land is consequently cheap; and though the population of the city is only two-thirds of that of Bombay and only three-fifths of that of Calcutta, it has spread itself over an area 5 square miles larger than that occupied by the former and only 3 square miles less than that covered by the latter. Though large parts are strictly urban in their characteristics, the city as a whole is, in fact, rather a fortuitous collection of villages, separated from the surrounding country by an arbitrary boundary line, than a town in the usual sense of the word.

For municipal and statistical purposes Madras is divided into twenty divisions, but in popular usage the different quarters of the city are referred to by the names of the villages within the original limits of which they stand. Some of these villages (Nangambaukam is an instance) are rural hamlets to this day, showing no sign of urban

influence beyond the municipal lamp-posts and dustbins with which their streets are dotted.

The commercial centre of the city is the native quarter called Black Town[1], which lies immediately behind the harbour and the two or three streets of European banks and mercantile offices which there face the sea, and is more thickly populated than any other part. Triplicane, the chief Muhammadan quarter, and Purasavākam and Vepery, where the greater number of the Eurasians reside, come next in density. All these lie in the middle of the city, but they are separated from one another by ample open spaces which will never be built over. Chief of these spaces is the Island, the city's principal parade and recreation ground, which is surrounded by the two arms of the Cooum river, and forms part of an extensive fire zone which the military authorities have reserved round the Fort. Next in importance comes the People's Park, begun in 1859 during Sir Charles Trevelyan's governorship, which consists of ornamental grounds with a considerable zoological collection. The Napier Park, lying between Mount Road and Chintādripetta, and the Robinson Park, north of Black Town, are also due to the initiative of Governors of the Presidency: namely, Lord Napier (1866–72) and Sir William Robinson (1875). Next to the Napier Park come the extensive grounds of Government House, and the open space round the group of public buildings which face the sea south of the Cooum. All these serve as lungs to the crowded centre of the city. Of the surrounding fringe the most thickly peopled area is that immediately north of Black Town, and its population will probably continue to increase, as it lies close to the busy quarter.

The principal European quarters are in the west and south of the fringe, in Egmore, Chetpat, Kilpauk, Nangambaukam, Teynampet, and in the strip of land on the north bank of the Adyar river. Here are the fine houses built by the merchant princes and the servants of John Company at the end of the eighteenth and the beginning of the nineteenth century, when officials were still allowed to trade. Many, such as Brodie Castle, Doveton House, Gambier's Gardens, still bear the names of the authors of their being. All of these are built of brick cased with shell-lime plaster (*chunām*), and are designed on very generous lines. The *zanānas* attached to some of them bear witness to the social customs of the period. Modern residences are planned on a more lowly scale and employ red brick.

These quarters of the city are served by handsome thoroughfares. Chief among them is Mount Road, running from the Wālājā Gate of the Fort across the Island, past Government House, the Madras Club, St. George's Cathedral, and the Horticultural Gardens, thence beside

[1] This name was officially changed to George Town, after the visit of the Prince of Wales, in 1906.

the bank of the Long Tank, over the Adyar by the Marmalong Bridge (built in 1726 by Petrus Uscan, the most notable of the Armenians of old Madras) to the Governor's country residence at Guindy and the cantonment of ST. THOMAS'S MOUNT, 9 miles from the Fort. Nearly parallel to it, the shorter Mowbray's Road, with its fine banyan avenue, leads to the Adyar Club, built by Mowbray, the first Accountant-General; and at St. George's Cathedral it is crossed by the Cathedral Road and the Nangambaukam High Road. The latter of these runs up to the once fashionable quarter on the Poonamallee Road, while the former leads eastwards to the Marina, a broad esplanade, built in the governorship of Sir M. E. Grant Duff[1], which runs along the sea front from the High Court to the suburb of St. Thomé, and has the makings of one of the finest thoroughfares in India.

The public buildings of Madras are more than usually handsome; but this again is a fact which the stranger is not likely to perceive immediately, for they are scattered about in a manner that robs them of all collective effect. The Post and Telegraph Office and the new Bank of Madras building are naturally near the harbour and the mercantile centre of the city, and so are the High Court and its appendage the Law College. The Fort, the zone reserved round it, and the Cooum sewer have, however, prevented the erection of other public buildings near these facing the sea, so that the next collection of them is more than a mile away on the Marina south of the Cooum mouth. This group consists of the Senate House, the beautiful office of the Board of Revenue (formerly the palace of the Nawābs of Arcot), and the Presidency College. Hidden in various isolated sites throughout the city are many other fine buildings: Government House; the Banqueting Hall, built by the second Lord Clive in 1802, and containing portraits of many Governors of Madras; the Museum and Connemara Library, the nucleus of which was the old Pantheon; St. George's Cathedral, Ionic in style and finished with the polished plaster-work that resembles marble; the Memorial Hall, erected by public subscription to commemorate the exemption of Madras from the horrors of the Mutiny; and others, which seen singly fail to arouse enthusiasm, but grouped together or more favourably situated would make an impressive collection.

The earlier public buildings, of which the Banqueting Hall and the Cathedral are instances, were built of brick cased with plaster moulded into detail copied from the Italian and other European schools. Since

[1] Of it he wrote, 'we have greatly benefited Madras by . . . turning the rather dismal Beach of five years ago into one of the most beautiful promenades in the world. From old Sicilian recollections, I gave in 1884 to our new creation the name of the Marina; and I was not a little amused when, walking there last winter with the Italian general Saletta, he suddenly said to me, "On se dirait à Palerme."'

the introduction of granite from Cuddapah and North Arcot in 1864, local architecture has, however, been slowly working towards an adaptation of the Hindu Saracenic; and the High Court, the Law College, and the Bank of Madras are built in this style, in red brick and grey granite. The latest building material is the beautiful brown stone from Nellore, close grained yet easily worked, of which the Young Men's Christian Association building on the Esplanade is made.

The chief statues of Madras are those of Her Majesty the late Queen-Empress, near the Senate House; of the King-Emperor, opposite the Mount Road entrance to Government House; of Lord Cornwallis, in the Fort square; of Sir Thomas Munro, by Chantrey, on the Island; of General Neill, of Mutiny fame, opposite the Madras Club; of Justice Sir Muttuswāmi Ayyār, in the High Court; and of the Rev. Dr. Miller, on the Esplanade, opposite the Christian College.

The churches of Madras deserve more space than can be accorded them. The foundation-stone of the Luz Church bears the date 1516 and the oldest European inscription in India. The St. Thomé Cathedral contains a series of memorials to Portuguese pioneers, beginning in 1557. St. Mary's Church in the Fort, consecrated in 1680, is the oldest Protestant place of worship in India, and contains the graves of Governor Nicholas Morse, a great-great-grandson of Oliver Cromwell and the man who capitulated to La Bourdonnais in 1746; of Lord Pigot, who defended the Fort against Lally in 1759, and was afterwards deposed and imprisoned by his own Council; of the famous Swartz, missionary and statesman; of Sir Thomas Munro, who died of cholera while on a farewell tour in his beloved Ceded Districts in 1827; and of many others who have made Madras history. The Roman Catholic Cathedral in Armenian Street was erected in 1775 by the Capuchins; and about the same time the Armenians, then a wealthy and influential community, built their church in the same street. St. Mark's, Black Town, was consecrated in 1804, St. George's Cathedral in 1815, and St. Andrew's (the Scottish Kirk) in 1821. The two last were designed by the Civil Architect, Major De Havilland.

The principal Hindu temples are those dedicated to Vishnu and Siva respectively in Triplicane and Mylapore; and the chief mosque is that in Triplicane.

The climate of Madras has been described with considerable accuracy as three months hot and nine months hotter. The cooler months are never cold, the mean temperature of December and January being 76°; but the heat in the summer does not approach that of Northern India, the mean for May and June being the moderate figure of 90°. The mean for the year is 83°. The annual rainfall, based on figures for eighty-five years, averages 49 inches, of which $29\frac{1}{2}$ inches are received during the north-east monsoon from October to

December and 15 inches from June to September in the south-west monsoon. The heaviest recorded fall during this period was 88 inches in 1827, and the smallest 18 inches in 1832, the year before the Guntūr famine.

Like other places on the Bay of Bengal, Madras is liable to severe cyclones. In October, 1687, a storm raged for five days, and drove ashore two ships lying in the roads. In 1721 another storm swept four ships from their moorings and wrecked one of them. On October 3, 1746, when La Bourdonnais' fleet was in the roads after the capture of the town, a cyclone sank three of his ships and two prizes, while four others either lost or cut away their masts and 1,200 men were drowned. In 1782 more than 100 native craft which had come to Madras with rice to feed the thousands who had flocked into the town to escape Haidar's horsemen were wrecked, and a terrible famine followed. Other cyclones occurred in 1811, 1818, 1820, 1836, 1843, and 1846. In the first of these ninety country vessels went down at their anchors, and the surf broke in 9 fathoms of water 4 miles from the shore. In the last, the Observatory anemometer broke at a registered pressure of 40 lb. to the square foot, and one of the massive masonry pillars on the Elphinstone bridge was blown over. In 1853, 1858, 1863, 1864, and 1865, other cyclones visited the place. The most destructive of all happened in May, 1872. The wind pressure was 53 lb. to the square foot. The shipping in the roads did not receive sufficient notice to put out to sea; and between 6 and 11 a.m. nine English vessels, with an aggregate tonnage of 6,700 tons, and twenty native craft were driven ashore, though owing to the use of the rocket apparatus only nineteen lives were lost. In 1874 another cyclone visited Madras, but this time the ships put to sea in time and escaped. The last was in 1881 and, as narrated below, did great damage to the harbour.

History.

Madras was founded in 1639 in the reign of Charles I. MASULIPATAM, then the Company's head-quarters on the Coromandel Coast, was hampered by the unfriendliness of the officials of the kingdom of Golconda, within which it lay, and by its distance from the native weaving and dyeing centres. These were farther south in the territories of the dying empire of Vijayanagar, the representative of which lived at CHANDRAGIRI and ruled through Naiks with local authority. In August, 1639, Francis Day, chief of the subordinate factory at ARMAGON, south of Masulipatam, obtained from one of these a grant of half the revenues of Madraspatam and permission to build a fort there. This fort was begun in anticipation of the Company's sanction by Day and Andrew Cogan, the Agent on the Coromandel Coast, in March, 1640, and was named Fort St. George, after England's patron saint. In honour of the local Naik's father Chen-

nappa, the settlement, as distinct from the town of Madras itself, was called Chennappapattanam, but the natives now apply the name Chennapattanam to the whole city. The Portuguese at St. Thomé, whose prosperity was already waning, had invited Day to settle there, but he preferred an independent position[1]. By the autumn of 1640, 300 or 400 families of weavers and others, attracted by an exemption from taxes for thirty years, had settled round the Fort, which, when finished, consisted of a tower or house enclosed by a rectangular wall 400 yards long by 100 yards wide, with bastions at the four corners.

In 1641 the place became the Company's head-quarters on the Coromandel Coast, in 1653 it was made independent of Bantam, and in 1658 Bantam and the stations in Bengal were put under its orders. The old records still in the Fort vividly describe the simple life of the factors of those early days: the common mess at which the Governor presided, the prayers which every one had to attend, and the penalties prescribed for swearing, drinking more than half a pint of brandy at a sitting, or getting over the Fort wall. They also detail the many trials undergone: the irrepressible interlopers, the ubiquitous pirates, and the hungry native potentates with their never-ending demands for more *douceurs*.

The Fort was frequently threatened. In 1672 the French took St. Thomé and fortified Triplicane; the Dutch drove them out in 1674; in 1687 Aurangzeb became aggressive; his general Daud Khān blockaded the place from St. Thomé in 1702; and in 1739 the Marāthās were hovering round. At each successive scare something was done to put the Fort, and the wall which had been built round Black Town, into better order. But, though these spasmodic efforts resulted in Day and Cogan's Fort being improved out of recognition, the Company always grudged expenditure on fortification, and the place remained wretchedly weak. When in 1746, during the first war between the English and the French, Dupleix's lieutenant La Bourdonnais attacked[2] it, Governor Morse meekly capitulated at once, and he and his Council were carried off to Pondicherry.

FORT ST. DAVID then became the head-quarters of the Company and continued as such until 1752.

The French retained possession of Fort St. George until 1749, when it was given back under the terms of the Treaty of Aix-la-Chapelle;

[1] Law and order were moreover at a discount there. One of the early letters to the Company says: 'Had wee imbraced theire proffer to reside in that cittie, you must have sought out for such servants to doe your busines as were both stick free and shot fre and such as cood digest poizon, for this is their dayly practice in St. Thoma, and no Justice.'

[2] This attack, and the later siege by Lally, referred to below, are graphically described by Orme.

and during those three years they pulled down the native and Armenian part of Black Town, which then clustered close under the north wall, and made a glacis out of the débris. But in other ways they left the Fort in an even worse condition than they found it; and when the Company regained possession they took steps at once to improve it, turning the north arm of the Cooum river away from the south wall of the Fort, and building on the ground so obtained and on the west a series of new bastions and works which practically constituted a new Fort enclosing the old one[1]. These changes enabled Pigot successfully to resist Lally's attack in 1759. The result of this siege, which followed on the second outbreak of war between the English and the French, was of the utmost moment, for the French had already captured Fort St. David and several others of the English settlements, and the fall of the Company's head-quarters would have been attended with disastrous consequences. The struggle lasted from December 14, 1758, to February 16 following, and was most obstinately contested on both sides. The chief line of attack was along the shore north of the Fort, Lally's principal battery being near the present High Court. The place was saved by the appearance of an English fleet in the roads, the French retreating as soon as it arrived.

The greater part of the Fort as it stands to-day, including its northern half and the Secretariat buildings, was either restored or constructed between 1763 and the end of that century. With the exception of Haidar Alī's threatening approach in 1769 and again in 1780, on which latter occasion he ravaged the country up to the very gates of the Fort, Madras has been free from outside attack since Lally's siege.

Beyond the limits of the Fort and Black Town the Company had little authority in early days. Tondiarpet, Purasavākam, and Egmore were granted to it in 1693; Veysarpādi, Nangambaukam, Tiruvottiyur, and Ennore in 1708; and Vepery, Perambūr, and Pudupākam in 1742. Possession of these and other tracts, including St. Thomé, which had been occupied in 1749 to prevent the French getting a footing there, was confirmed by a *farmān* of the Mughal emperor in 1765. These villages were usually leased out, and though some of them boasted outposts with guns, they were too weak to be seriously defended when attacks occurred.

South-west of the Fort, stretching as far as Mylapore and the Long Tank, where now lies the most prominent part of the town, was an open and treeless expanse called the Choultry Plain; and at the time of Lally's attack the Governor's garden-house on the Cooum bank, where Government House stands now, was apparently the only

[1] A minute description of these improvements is given in Orme, vol. ii, pp. 402–5.

European residence on that side of the Fort. Most of European Madras as it now appears was built at the end of the eighteenth and the beginning of the nineteenth century.

Population.

The population of Madras in 1871 was 367,552; in 1881, 405,848; in 1891, 452,518; and in 1901, 509,346. It is increasing more rapidly than that of ordinary rural areas, and the census statistics of birthplace show that this is largely due to immigration from the neighbouring Districts of Chingleput and North Arcot. Between 1891 and 1901 the general rate of increase was 12·6 per cent., but in parts of the city, it was much higher. The number of people in Perambūr and Veysarpādi, for example, owing mainly to the establishment of two cotton mills, the Madras Railway workshops, and the quarters and bazar of a native regiment in or near that locality, has more than doubled in the last thirty years; and the inhabitants of the houses between Parry's corner and Messrs. Arbuthnot's office have doubled in numbers even during the last decade. Emigration statistics show that large numbers of persons left Madras for other countries by sea; but only a small proportion of these were natives of the city itself, the majority coming to the port from inland Districts.

The density of the population is greater than that of any other of the large cities of the Presidency; and the average number of persons living in each occupied house is nine, compared with six in the other towns with over 50,000 inhabitants, while in the heart of Black Town it is as high as thirteen. The city is also increasing in strictly urban characteristics. The proportion of the inhabitants between twenty and forty years of age is as high as one-third of the total, and the proportion of women to men continues to decrease and is now only as 98 to 100. In the parts where hard manual labour is in the greatest demand, such as Perambūr and the area round the harbour, the proportion of women is even less.

Owing to the presence of the Prince of Arcot and his following and of a large number of Europeans and Eurasians, the proportion of Musalmāns and Christians is considerably higher than usual, there being 113 Musalmāns and 80 Christians in every 1,000 of the population, against 64 and 27 in the Presidency as a whole. In 1901 there were 4,228 Europeans and 11,218 Eurasians in Madras; but the Armenians, who once formed a considerable community, numbered only 28. There were 63 Pārsīs and 11 Jews.

The city is the head-quarters of the Church of England Bishop of Madras, of the Roman Catholic Archbishop of Madras and the Bishop of Mylapore, of the Church of Scotland, and of many Christian missions and societies, among which may be specified the Societies for the Propagation of the Gospel and for Promoting Christian

Knowledge, the Church Missionary Society, the Wesleyan Mission, the London Missionary Society, and the Madras Bible Society.

The chief vernacular of the city is Tamil, which is spoken by nearly three times as many people as any other tongue. Next in importance comes Telugu, which is the language of a fifth of the population. It follows that the Tamil and Telugu castes largely predominate. Of the former the Paraiyans (labourers, 63,000), Vellālas (63,000), and Pallis (52,000) are the most numerous, and of the latter the Balijās (merchants, 48,000). The next most numerous caste, the oil-pressing Vāniyans, is only 20,000 strong. Brāhmans are more than usually numerous, forming 6 per cent. of the Hindu population. Most of the Musalmāns returned themselves as Shaikhs by tribe. There is a sprinkling of foreign races, but none of them is numerous.

In their occupations the people naturally present a complete contrast to those in the country Districts, less than 4 per cent. being employed in callings connected with agriculture and pasture, as compared with 71 per cent. in the rest of the Presidency, while the numbers gaining their livelihood from service under Government, personal and domestic service, the supply of food and drink, commerce, and the learned and artistic professions are proportionately much larger than elsewhere. The number of persons of independent means is also unusually high.

Births and deaths are registered with more accuracy in Madras than anywhere else in the Presidency, and consequently the rates of both are apparently much higher than in other urban areas. On an average of recent statistics they were 41·9 and 40·5 per 1,000, respectively, against 34·6 and 30·5, respectively, in all urban areas. The great majority of the deaths are returned, as usual, under the vague headings of fevers and 'other causes.' The city was free from plague up to 1905, when a few cases were discovered, and it remained infected for some time. Cholera is frequently imported from the neighbouring villages, over which the municipality has no sanitary control.

The city cannot boast that it is healthy to native life, though to Europeans it is salubrious enough. The tanks to the west, and the rice-fields within its limits which are irrigated from these, keep the subsoil water at a high level, and moreover the drainage system has hitherto been inadequate to remove the large quantities of water brought every day by the municipal water-works. The soil is accordingly much waterlogged. Considerable quantities of sewage also at present flow into the Cooum, owing to the inadequacy of the existing drainage arrangements. A new drainage scheme, referred to below, is expected to do much to cure these defects. The recently erected Moore Market has been of service in improving the food-supply.

Besides the educational and medical institutions described below,

Madras possesses a large number of scientific, charitable, and social institutions and societies. Chief among those devoted to science are the Observatory and the Museum. The Observatory was the first established by Europeans in the East. Its nucleus was a collection of instruments formed by a scientific member of Council, William Petrie, and presented by him to the public service when he left India in 1787. The present building was erected in 1792, Sir Charles Oakeley, who was keenly interested in such matters, being then Governor. John Goldingham was the first astronomer, holding the post till 1830; and he and his successors, notably T. G. Taylor, F.R.S. (1830–48), Captain W. S. Jacob of the Bombay Engineers (1849–59), and N. R. Pogson (1861–91), have done much work of permanent value in astronomical annals. The Observatory contains among its instruments a large equatorial and an efficient transit circle. The Meteorological department in connexion with it was established in 1867, and was brought under the Government of India in 1874. In 1899 the Madras Observatory was transferred to the Government of India, the astronomer became the Director of the Observatories at KODAIKĀNAL and Madras, and the latter institution was put under the immediate charge of a deputy-Director, who is also the Meteorological Reporter to Government. Its work is now chiefly confined to meridian observations for determining the time, and the maintenance of the time service, which is effected by the daily transmission to the Central Telegraph Office at Madras, and thence automatically throughout India, of a signal marking the moment at which standard time is 4 p.m. Special observations are also made for the issue of storm-warnings, and the daily weather report for the Presidency is compiled from telegraphic information received from the various recording stations.

The Museum was founded in 1851. Its nucleus was a collection of geological specimens presented by the Madras Literary Society, and the duplicates of the articles sent to the Great Exhibition of 1851 in Hyde Park. In 1855 subordinate museums were established in five different Districts; but they were not successful, and in 1861 all but that at Rājahmundry were closed and many of the articles in them were transferred to Madras. In 1855 a Zoological garden was connected with the Madras Museum, but this was transferred to the People's Park in 1863. In recent years, under Mr. Thurston's care, the Museum has been very greatly developed. The policy adopted has been to render it a popular illustrated guide to the natural history (animal, vegetable, and mineral), arts, archaeology, ethnology, and economic resources of the Presidency; and that it is appreciated by the public is sufficiently shown by the fact that it is visited annually by more than 400,000 persons. Among the most valuable objects in the archaeological section are the sculptured marbles from the

railing of the Buddhist *stūpa* at Amarāvati in Guntūr District, the date of which is about the end of the second century A. D.; and a fragment which is supposed to be part of one of Buddha's bones, as it was found (at Bhattiprolu in the same District) in a rock-crystal casket enclosed in an outer stone case, inscribed with the statement that it was made to contain relics of Buddha. The collection of arms and armour from the Arsenal in the Fort and the Tanjore palace, the prehistoric antiquities, and the numismatic collection, which is especially rich in coins of the various native dynasties of Southern India and of the various European Companies which have held sway there, are other notable possessions of the institution. Attached to the Museum is the Connemara Public Library, which was opened in 1896, contains more than 10,000 standard works, and is used by about 14,000 persons annually; and a theatre, capable of seating 400, provided with a stage adapted for lectures, conferences, and charitable entertainments by amateurs.

Of the charitable institutions in Madras two of the oldest are the Friend-in-Need Society and the Monegar Choultry, which were founded in 1807 and 1808 respectively. Both are supported by public subscriptions and grants from Government. The former devotes itself to the relief of destitute Europeans and Eurasians and the suppression of mendicity among them. The latter affords shelter, food, and clothing to the native poor and infirm, irrespective of caste or creed, and relieves 50,000 cases annually. Besides these, Government contributes to the upkeep of two civil orphan asylums, a foundling asylum, the Triplicane Langarkhāna, or poorhouse, and other charitable institutions.

Madras has a Literary Society, which possesses a library of over 45,000 volumes; a Fine Art Society, which holds an annual exhibition and in other ways encourages art; an Agri-Horticultural Society, which manages the ornamental gardens opposite the Cathedral and holds an annual flower show; a Musical Association and an Amateur Dramatic Society; a Gymkhana Club; clubs for cricket, boating, and racing; and the two favourite resorts of Madras society, the Madras Club and the Adyar Club. The Madras Club was founded in 1831. Up to then the usual meeting-place had been Lord Cornwallis's Cenotaph on the Mount Road, or (for the younger members of the King's and Company's services) the Tavern of the Exchange (now the British Infantry mess) in the Fort.

Industries.

The chief indigenous arts of Madras are silk- and cotton-weaving, silver-work, and embroidery. Raw silk is obtained from Bangalore, Calcutta, and Bombay, mixed with cotton and woven into native cloths which are sold locally and also exported to Ceylon, Burma, the west coast of the Presidency, and

even Natal. The cotton cloths made are of the ordinary coarse variety. The silver-work and embroidery employ but few hands; but the former is less known than it deserves to be, while the latter is usually in excellent taste and consists of silk, gold or silver thread, or green beetle wings procured from Cuddapah, worked on satin or muslin. The School of Arts gives instruction in a number of other directions, such as wood-carving in the Dravidian style, brass and copper repoussé work, lacquer-work, and carpet-weaving; but none of these arts has as yet taken root outside its walls.

Madras has hardly any notable manufactures. Until very recently tanning was an important industry. The factories are just outside the city in Chingleput District, which in 1900 possessed 97 of them with an out-turn valued at 32 lakhs. The industry is now seriously threatened by the superior speed and cheapness of the American process of chrome tanning, but an attempt is being made to introduce similar methods in Madras.

The Buckingham, the Carnatic, and two other mills, all established between 1874 and 1883, spin yarn and weave cotton cloths of various descriptions. Their total capital is 27 lakhs, they possess 1,700 looms and 117,000 spindles, and they employ a daily average of more than 7,000 men, women, and children. Cement and tile-works employ 350 hands, and produce an annual out-turn valued at over $1\frac{1}{2}$ lakhs. There are nine iron foundries and four cigar factories, one of which makes twelve million cheroots annually. A new industry is the manufacture of aluminium utensils.

Commerce.

Although Madras has no natural harbour, it ranks fifth among the ports of India in the value of its trade and fourth in the tonnage of vessels which enter and clear at it. But if the averages for the last two quinquenniums are compared, it will be found that foreign trade has remained practically stationary. Fifteen or twenty years ago this was always greater than that of Karāchi, and frequently in excess of that of Rangoon; but during the last five years it has always been less than that of Rangoon, and has twice been less than that of Karāchi.

Including the coasting trade, but excluding Government stores and treasure, the annual value of the total external import trade of the port during the five years ending 1903–4 averaged 781 lakhs, and of the export trade 557 lakhs, making an aggregate of 13·38 crores, or £8,920,000. It is one of the few ports in the Presidency at which imports exceed exports. Of the imports 651 lakhs and of the exports 502 lakhs was from and to foreign countries, and the remainder was carried coastwise from and to Indian ports. An annual average of 1,200 vessels, with a tonnage of 2,391,000, enter and clear the port in cargo or in ballast. Of these an average of 950, with a tonnage

of 1,802,000, are coasting traders. More than 40 per cent. of the total sea-borne trade of the Presidency is conducted from the port. More than 70 per cent. of the imports and nearly 60 per cent. of the exports are respectively brought from and sent to the United Kingdom.

By far the largest item in the foreign imports is European piece-goods, twist and yarn. Next come iron and steel, machinery and railway plant, and kerosene oil. Of the foreign exports, hides and skins are the most important item, and they are followed after a long interval by Indian piece-goods, indigo, and raw cotton. The native traders are chiefly Tamil Chettis and Telugu Komatis and Balijās. Foreigners, such as Pārsīs, Gujarātis, Bhātias, and Bohras take a share, but are few in numbers.

The serious disadvantage of the absence of any natural harbour at a port where the surf is continual has been met by the construction of a screw-pile pier and a harbour of masonry. The pier was completed in 1862. The harbour was begun in 1876 and by September, 1881, was nearly completed. It consisted of two parallel masonry breakwaters, each 500 yards distant from the pier, running out at right angles to the shore for 1,200 yards into 7½ fathoms of water, and then bending towards one another so as to leave an entrance in the centre of the east side 550 feet wide. The space thus enclosed was calculated to hold nine steamers of from 3,000 to 7,000 tons. On November 12, 1881, a cyclone occurred, which, besides minor damage, washed away half a mile of the breakwaters, threw the two top courses of concrete blocks into the harbour, hurled over two of the Titan cranes used on the works, lowered and spread out the rubble base of the breakwaters, and washed away 1½ miles of construction railway.

In 1883 a committee of English experts reported on the best method of completing the work, and in 1884 operations were recommenced. The harbour was completed in 1896 on practically the original design, except that the width of the entrance was reduced to 500 feet. The total cost from first to last was 126 lakhs. Since then, however, it has silted up considerably; and after much discussion in India and England, it has now been decided to close the existing entrance on the east, which is rapidly shallowing, and to open another at the north-east corner. It has also been suggested that, in the large accretion of sand which the construction of the harbour has occasioned on the coast to the south, a dry dock should be excavated in which ships could be unladen direct on to wharves instead of into boats and lighters as at present. By Madras Act II of 1886 the harbour was vested in the Harbour Trust Board, the average income of which was 7½ lakhs, mainly derived from harbour dues. By Madras Act II of 1905 it has now been vested in a board of trustees. The light, on

the main tower of the High Court building, is a double-flash white light visible 20 miles in clear weather.

The rail-borne trade of the city amounts to 740,000 tons, of which 344,000 tons are imports and the remainder exports. The imports from places within the Presidency are nearly treble those from outside it, but the exports go in about equal quantities to places within and without the Presidency.

Of the external imports, more than half come from the Nizām's Dominions, largely in the shape of coal from the Singareni mines. Nearly all the external exports are sent to Mysore. They consist chiefly of coal and coke brought to Madras by sea from Bengal and sent to Kolār for use on the gold-fields, while grain and pulse, metals, and kerosene oil are also important items. The coal sent to Kolār has greatly decreased in quantity since electrical power has been supplied to the gold-mines from the Cauvery Falls.

The chief internal imports are grain and pulse, which come largely from Ganjām, Vizagapatam, Godāvari, and the three Districts—Nellore, Chingleput, and North Arcot—adjoining the city; stone, lime, and wood, imported mainly from the same three Districts; dyes and tans, from these three Districts and the Deccan; oilseeds, and hides and skins. The internal exports consist chiefly of salt, sent mainly to the inland Districts in the south; grain and pulse, dispatched largely to the three adjoining Districts; metals, most of which are sent south; coal and coke; kerosene oil, and European piece-goods.

The whole of this trade is carried by two railways, the Madras and the South Indian systems. The former is on the standard gauge and has three sections. Of these, the north-east or East Coast line, starting from the Royapuram terminus, connects Madras with Calcutta; the north-west line, from the Central station, leads to Bombay; and the south-west line from the same terminus goes to the West Coast. The South Indian Railway, a metre-gauge line with its terminus in Egmore, runs to Tuticorin, whence steamers ply to Colombo and so place Madras in communication with the ocean liners which touch at that port. The Madras and South Indian Railways have a joint station on the Beach, opposite the harbour, for the convenience of the shipping; and the north-east line of the former is being carried into the Central station.

The British India Company's steamers sail periodically from Madras to Calcutta, Bombay, Rangoon, and the Straits.

The Buckingham Canal provides cheap transit to and from places along the coast between Guntūr District north of the city and South Arcot District south of it. A cheap and speedy service of electric trams is in operation in the more crowded parts of Madras, and the Corporation maintains 187 miles of metalled roads. There is a telephone exchange and an hourly postal delivery throughout the city.

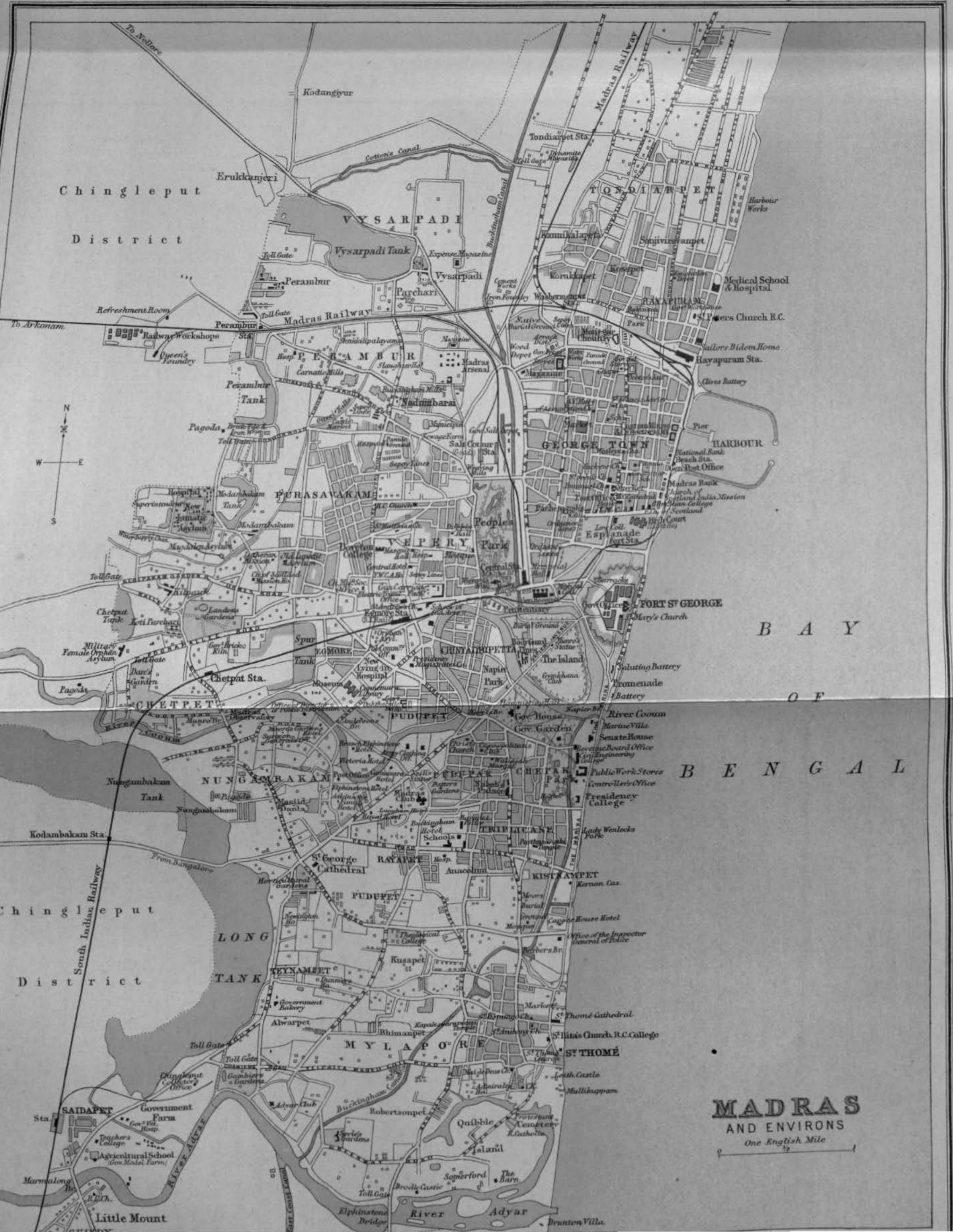
The revenue of Madras is administered by a Collector, who is also Collector of Sea Customs, Protector of Emigrants under the Emigration Act XXI of 1883, and Superintendent of Stamps and Stationery for the Presidency.

Administration.

In the early days of Fort St. George revenue was raised not only from the rents of the villages and gardens round the Fort, but also by taxes on tobacco, betel, wine and country spirit, by land and sea customs, by market dues, and by quit-rents on houses [1]. The main part of these was collected by an officer known as the Land Customer. In 1730 the total revenue amounted to about £30,000. After Chingleput District came into the Company's possession in 1763, the management of the villages, which were then known as the Home Farms, was made over to the Collector of that District; but in 1870 the Collector of Madras, as the Land Customer was by that time called, was made responsible for the revenues of the city, and he continues in charge of all of them except those from Salt and Abkāri. The agricultural land is held on the ordinary *ryotwāri* tenure; but the old quit-rents on house property, which are still collected, are peculiar to the city. The chief items of general revenue in Madras (in thousands of rupees) were, in 1903-4: from land revenue 98, quit rents 83, stamps 4,52, excise 16,87, and income tax 5,16. Besides these, large receipts under other heads, such as customs, owe their importance to the fact that the city is the chief port and the capital of the Presidency, but can hardly be considered to form part of its revenue as a District.

In the early days of old Madras both civil and criminal justice were administered by the Choultry Justices, who consisted of the Land Customer, the Mint-master, and the Pay-master, and sat twice a week at the Choultry. From 1678 the Governor and Council sat on Wednesdays and Saturdays in the chapel of the Fort to hear the more serious civil and criminal cases, while the Choultry Justices continued to dispose of petty matters. In 1688 the newly appointed Mayor and Aldermen were constituted a Court of Record which replaced the Choultry Justices, and about the same time a Court of Admiralty with a Judge from England, the forerunner of the present High Court, was established under charter. In 1726 the Governor and Council were appointed a Court of Quarter Sessions for the trial of all offences except treason, and were also empowered to hear civil appeals from the Mayor's Court. In 1801 a Supreme Court, consisting of a Chief Justice and two barrister Judges, was established by royal charter, under Act of Parliament, with original jurisdiction in Madras City; and finally in 1862 the Company's two courts of civil and criminal

[1] 'Nine fanams for every great house, 6 fanams for every small house, and 3 fanams for every little round house.'


MADRAS
AND ENVIRONS
One English Mile
Chingleput
District
BAY
OF
BENGAL
To Nellore
Kodungiyur
Madras Railway
Tondiarpet Sta.
TONDIARPET
Harbour Works
Cotton's Canal
Erukkanjeri
VYSARPADI
Vysarpadi Tank
Vysarpadi
Buckingham Canal
Perambur
Refreshment Room
To Arkonam
Perambur Sta.
Railway Workshops
PERAMBUR
Madras Arsenal
Perambur Tank
Madras Railway
Washermanpet
ROYAPURAM
Medical School & Hospital
St. Peters Church R.C.
Rayapuram Sta.
Clives Battery
Pier
HARBOUR
GEORGE TOWN
National Bank
Beach Sta.
Gen. Post Office
Madras Bank
High Court
Esplanade
Fort Sta.
PURASAVAKAM
VEPERY
Peoples Park
Central Sta.
FORT ST. GEORGE
St. Mary's Church
Chetput Tank
Egmore Sta.
Spur Tank
EGMORE
CHINTADRIPETTA
The Island
Saluting Battery
Promenade
Battery
Napier Park
Chetpat Sta.
CHETPET
River Cooum
Gov. House
Gov. Garden
Senate House
Nungumbakam Tank
NUNGAMBAKAM
Public Work Stores
Controller's Office
Presidency College
CHEPAUK
Kodambakam Sta.
From Bangalore
TRIPLICANE
Lady Wenlocks Park
St. George Cathedral
ROYAPETT
KISTNAMPET
PUDUPET
South Indian Railway
LONG
TANK
TEYNAMPET
Alwarpet
Bhimanpet
MYLAPORE
St. Thomé Cathedral
ST. THOMÉ
Mullikappam
Robertsonpet
Quibble Island
Government Farm
SAIDAPET
Sta.
Agricultural School
River Adyar
Marmalong Br.
Little Mount
Elphinstone Bridge
River Adyar
Brunton Villa

appeal, styled the Sadr and Faujdāri Adālats, were combined with the Supreme Court to form the present High Court.

Civil Justice is now administered by three judges of the Court of Small Causes, by the City Civil Court, and by the High Court. The first of these had its origin in a Court of Requests founded in 1753, and then possessing jurisdiction only up to Rs. 20. It now tries cases up to Rs. 2,000 in value. The City Civil Court, constituted by Act VII (Madras) of 1892, has power to hear suits up to Rs. 2,500 in value, except those which are cognizable by the Small Cause Court.

Criminal justice is administered by four full-power magistrates called the Presidency Magistrates, sessions cases arising within the city being heard by the High Court.

The internal administration of the city is in the hands of the Municipal Corporation, which consists of a President paid from municipal funds and appointed by the Government, and a body of honorary commissioners partly elected by the ratepayers and certain public bodies and partly nominated by the Government. The President is assisted in his executive work by an Engineer, a Health officer, and a Revenue officer, all of whom are also appointed by Government. A special Act, which has recently been remodelled, governs the operations of the Corporation.

The first organized effort towards municipal government in Madras was made in 1687, when, on the initiative of Josia Child, Governor of the Company, a Mayor and Corporation consisting of 12 Aldermen and 60 Burgesses, with a Recorder, were established by charter. On September 29, 1688, the Aldermen in robes of scarlet serge and the Burgesses in white China silk met in state in the Fort to hear the charter read and take the oaths. Their only income at first was from certain petty dues on measuring grain and weighing goods which the Government assigned to them. The records show that roads and bridges were repaired out of the proceeds of an impost called the Town Conicopillay's duty; but it is not clear that the proceeds of these were administered by the Corporation, and as the natives strenuously resisted all new taxation that body apparently had no considerable revenue. Municipal government proper began with the passing of an Act of Parliament in 1792, which legalized the collection of assessments on houses and lands in the three Presidency towns for expenditure upon their good order and government. From that time forward a succession of Acts has gradually improved the municipal machinery, and the Corporation now has an annual revenue, excluding receipts from loans, of 13 lakhs. The chief items are the house and land taxes, which together bring in nearly 5 lakhs, and the water tax, which produces nearly 2 lakhs. The largest item on the expenditure side is sanitation, while drainage, roads, and water-supply follow next. The

commissioners have been continually hampered in their undertakings by the straitness of their means. The straggling nature of the city involves a larger expenditure on many items than is easily met from the receipts, and improvements of any magnitude have had to be paid for from loans, the interest on and repayment of which form a heavy charge on the revenues.

The most important of the commissioners' undertakings have been the water-supply and drainage of the city. Madras is supplied with water from a reservoir called the Red Hills Lake, which is fed from another reservoir known as the Cholavaram tank, which in its turn is filled by a channel from the Korttalaiyār river. This lake is 7 miles distant, and the water is brought from it by an open channel and eventually led into pipes and distributed throughout the city. The scheme was begun in 1868 and finished in 1872, and was carried out under the supervision of the municipal Engineer, Mr. Standish Lee. On November 20, 1884, a cyclone burst the bank of the Red Hills Lake, and the breach rapidly widened until it was nearly a mile in length and the lake was practically emptied. For ten days, until the breach was temporarily repaired, Madras was dependent upon the small Trevelyan reservoir and the old Seven Wells supply for its water. The Red Hills Lake has a capacity of 100 million cubic yards; but as it lies low, the head of the supply channel being not quite 36 feet above sea-level, only a portion of this can be drawn off at a level which will command the city, and when the water in the lake falls below a certain height the supply has to be maintained by pumping. The annual quantity of water supplied averages 415 million cubic feet; but owing to the want of pressure due to the low situation of the lake, the amount available is insufficient for the needs of the people in about one-third of the area of the city. To remedy this it is proposed, when funds are available, to introduce a new scheme under which Red Hills water will be pumped to the top of a ridge near the lake which is 90 feet above sea-level, and taken thence to the city in pipes under the pressure resulting from this elevation. The capital cost of the existing works was 24½ lakhs, of which 21 lakhs was met from loans and the remainder from revenue and grants from Government. Up to 1905, 11½ lakhs had been invested in Government securities towards a sinking fund for the repayment of this sum. The annual cost of the maintenance of the scheme is Rs. 1,16,000.

Parts of the city have been systematically drained for many years. Black Town, the most thickly populated quarter, is served by a complete system which was begun in 1882 and was prepared by the municipal Engineer, Mr. J. A. Jones. This consists of open U-shaped drains at the side of the streets, which empty themselves into three parallel sewers. These discharge into a main sewer, which leads to

a well in Royapuram, whence the sewage is pumped through an iron main for $1\frac{1}{2}$ miles, and then taken by an open masonry channel about half a mile farther to a sewage farm of about 78 acres north of the city. Here it is utilized for growing hay, which is largely bought by the Commissariat department and brings in a considerable revenue. This scheme cost $10\frac{3}{4}$ lakhs, and the amount was raised by a special loan. Up to 1905, $5\frac{1}{4}$ lakhs had been invested in Government securities towards its repayment. The annual cost of maintenance of the scheme is Rs. 67,000.

Besides Black Town, certain other smaller localities have been drained on the same system, by leading the sewage into wells and pumping it on to sewage farms. There are four of these pumping stations. One in D'Mellow's Road serves Purasavākam, Chūlai, Vepery, and Egmore; another, in the Napier Park, Chintādripetta and North Triplicane; a third, at Kistnampet, South Triplicane and Kistnampet; and the fourth, at Mylapore, deals with the sewage of Mylapore and St. Thomé. The total area of the four farms is 65 acres. The cost of maintenance of the four systems aggregates Rs. 37,000. These farms are, however, too small to deal with all the sewage pumped, and are, moreover, situated too near human habitations.

A new scheme for the drainage of the entire city, except Black Town, has accordingly been drawn up and is now in progress. This will do away with the isolated farms, and will take the whole sewage of the town to a large farm beyond its northern outskirts. The essentials of the scheme were planned by an expert from England, but the details have been modified by the Engineer to the municipality. The house drains will discharge into siphon traps fixed in the street, and the sewage will be led, by pipes laid at self-cleansing gradients, to seven different wells serving the following seven quarters of the city: Mylapore; Kistnampet and South Triplicane; North Triplicane, Chintādripetta, and Pudupet; Egmore; Purasavākam, Chūlai, and part of Perambūr; Tondiarpet and Washermanpet; and Royapuram. From these wells it will be forced under pressure into a high-level cast-iron main, which will be 9 miles long and will traverse the length of the city from Mylapore in the south to the sewage farm in the north. The whole scheme is estimated to cost 40 lakhs.

Besides the outlay on the water-supply and drainage schemes, the commissioners spend an average of $3\frac{1}{4}$ lakhs, or more than one-fifth of their income, on other sanitary measures. The chief recent improvements have been the construction of the Moore Market, so called after the late President of the municipality, at a cost of $2\frac{3}{4}$ lakhs; the erection of two cinerators for the destruction of the town rubbish; and the cutting of a number of new streets and lanes through the most crowded and insanitary parts of the city. The

more notable of these latter are the street from the Wālājā Road to Pycroft's Road in Triplicane, and that from Waller's Road to the Napier Park.

A few troops are always stationed in Madras itself, in the Fort and elsewhere, besides others at St. Thomas's Mount, Poonamallee, and Pallāvaram on the outskirts of the city. In addition, there are three corps of Volunteer Rifles—the Madras Volunteer Guards, the South Indian Railway Volunteer Rifles, and the Madras Railway Volunteers; and also the Madras Artillery Volunteers.

The police arrangements in old Madras were as primitive as those for the administration of justice. Outside the Fort an hereditary official known as the Pedda Naik ('big peon') was appointed, who, in return for the grant of certain rice-fields rent free and petty duties on rice, fish, oil, betel-leaf, and betel-nut, was required to keep up a certain staff of peons (originally twenty were found enough, but the numbers were afterwards increased), and either to detect all crimes committed or make good the losses of those who were robbed. He was also required to provide the Governor when called upon with a body-guard of 150 peons. On state occasions he used to ride at the head of his peons in the processions accompanied by 'our country music,' as the old papers call it, the precursor, apparently, of the Governor's Band. In 1858 the police throughout the Presidency, the city force included, was entirely reorganized and placed under Sir William (then Mr.) Robinson, the first Inspector-General of Police. The force in Madras City consisted in 1904 of a Commissioner of Police, with a Deputy and 2 Assistant Commissioners, 16 inspectors, and 1,321 subordinate officers and constables, of whom 4 were mounted, and 44 marine police. There were 22 police stations.

The Penitentiary in Madras ranks as a Central jail; but, unlike most of such institutions, it is also used for the detention of prisoners sentenced to short terms, there being no subsidiary jails in the city. It has accommodation for 1,046 prisoners, including 59 in the hospital and 42 in the observation cells. The daily average number in 1904 was 1,091. The principal industry on which the convicts are employed is composing, printing, and binding forms and books for the Government Press; and the section of the jail in which this work is done is treated as a branch of the Press. On an average, 320 convicts were daily employed in this manner. Next in importance comes the manufacture of cotton goods, such as tent-cloth, rope, tape, and bedding for the various departments of Government, especially the army. In this work a daily average of 145 men were employed. Boot- and sandal-making for the Police, Jail, and other departments, and the expressing of gingelly oil occupy between them 80 men daily. The

net profit on all the manufactures in 1904 was Rs. 42,000, which was considerably larger than that earned in any other Central jail. Within the Penitentiary is the only Government workhouse which has been established in the Presidency under the European Vagrancy Acts. Civil debtors are usually confined in a portion of the Central and District jails, but in Madras the civil jail is in Popham's Broadway at some distance from the Penitentiary. Including its hospital, it will hold 81 persons. In 1904 the daily average number of persons confined in it was 34. There is also a Criminal Leper Ward in Royapuram, with accommodation for 23 persons.

Education.

The first educational effort in the early days of Fort St. George was the dispatch by the Company of a schoolmaster, who arrived in 1678. In 1715 the European inhabitants convened a public meeting, and resolved to establish a free school for Protestant European and Eurasian children. St. Mary's Charity School was the result, and it survived till 1872, when it was amalgamated with the Civil Orphan Asylums. The first attempt to educate the natives was made by Christian missions. In 1717 the Danish missionaries at Tranquebar, of whom the chief was the famous Ziegenbalg, obtained leave from the Government to establish two schools, one for Portuguese in the English town and another for Malabars (Tamils) in the Black Town. Their labours in this and other stations received substantial support from the Society for Promoting Christian Knowledge.

Madras is now the educational centre of the Presidency. Besides the University, which is purely an examining body, conferring degrees in Arts, Law, Medicine, Engineering, Teaching, and Sanitary Science, the city contained on March 31, 1904, 10 Arts colleges, 3 professional colleges, 97 secondary and 421 primary schools, and also 22 technical and training schools. Of the ten Arts colleges, three—the Presidency College, the Madras Christian College, and Pachayyappa's College—are first-grade institutions giving instruction up to the B.A. degree. The first of these is managed and financed by Government, while the other two are aided with grants. The three professional colleges are the Law College, the Medical College, and the College of Engineering. Most of the lectures in the Law College were originally given by specially selected barristers and *vakīls* of the High Court in the early mornings and late afternoons when the Court was not sitting; but from 1902 it has been made a whole-time college, with a permanent staff of a principal and three professors. The Medical College has also recently been reorganized in important directions. At SAIDAPET, just outside the limits of the city, are the Teachers' College and the College of Agriculture. The latter is to be transferred to Coimbatore. A noticeable point in connexion with all these special colleges

is the high proportion of Brāhmans among the students. Games and athletics are greatly encouraged at all the colleges and larger schools.

Of the training schools, one is specially maintained for training schoolmasters belonging to the Panchamas, or depressed castes, for work in the schools for those classes. The special institutions include schools or classes of medicine, engineering, telegraphy, printing, drawing, and dressmaking, two commercial schools, three industrial schools, four schools of music or singing, the Anjuman, and the School of Arts. The Anjuman was established in 1885 to ameliorate the condition of the Musalman poor of both sexes, and, though intended chiefly as a technical school, provides also for general education. It has a showroom for its productions in the Mount Road. The School of Arts was started by Dr. Hunter as a private concern in 1850, and was taken over by Government in 1855. It consists of two branches: one in which drawing, designing, modelling, and engraving are taught; and another in which instruction is given in wood-carving, carpet-weaving, metal-work, and painting. All the students are required to attend the classes in the former. For some time special attention was paid in the school to the capabilities of aluminium as a material for household and other utensils, and one result of this has been the establishment of a private industry in the manufacture of articles from this metal. The possibilities of chrome tanning are now being investigated.

The total number of pupils under instruction in the city in 1880–1 was 23,650; in 1890–1, 34,948; in 1901–1, 42,348; and in 1903–4, 47,236 of whom 11,472 were girls. Madras far surpasses all the country Districts in the literacy of its inhabitants. Of the males 36 per cent. and of the females 9 per cent. can read and write, while in the Presidency as a whole the corresponding figures are 12 and less than one. Fourteen per cent. of the inhabitants can read and write English, compared with less than 1 per cent. in the Presidency generally. Of the girls in the upper stages of the schools and in the colleges, the majority are Europeans, Eurasians, and native Christians. Of the 99 women who have up to the present passed the F.A. Examination, 66 were Europeans, 26 native Christians, 6 Brāhmans, and the remaining one a non-Brāhman Hindu. In 1905 two European ladies and one native Christian passed the B.A. examination. Of late years efforts have been made to remove students in the city from the unwholesome associations of native lodgings by providing them with properly regulated hostels or boarding-houses. Four of these were built by Dr. Miller, partly at his own expense, in connexion with the Christian College. Five others are attached to the Teachers' College, another is connected with the Panchama training school already re-

ferred to, and another, the Victoria Hostel, stands behind the Presidency College in Chepauk. This is the largest of all, but it is far too small to hold the many applicants for admission. Of 13 lakhs spent upon all the educational institutions in the city in 1904, about 36 per cent. was devoted to the colleges, 38 per cent. to secondary schools, 17 per cent. to training and special schools, and 9 per cent. to primary education. Of the total, 39 per cent. was met from general revenues, 36 per cent. from fees, and 25 per cent. from endowments and other sources.

Madras has five daily newspapers. Two of these, the *Madras Mail* and the *Madras Times*, are edited by Englishmen; and the three others, the *Hindu*, the *Madras Standard*, and the *Indian Patriot*, are edited by natives. In addition, there are 10 weekly papers and 31 papers and magazines published bi-weekly, monthly, or quarterly. Of these, as many as 14 are devoted to religious subjects. Others represent law, education, and social reform, the planters, the Eurasians, and the Muhammadans; while three of them, the *Christian College Magazine*, the *Madras Review*, and the *Indian Review*, are magazines of repute which deal with current and literary topics. The latest venture is the *Indian Ladies' Magazine*, written for native ladies and edited by one of them.

Medical.

Madras possesses nine hospitals and five dispensaries. Of the former, five—namely, the General, Maternity, Ophthalmic, Leper, and Voluntary Venereal (Women's) Hospitals—are maintained from Provincial funds; one, the Royapettah Hospital, by the Corporation; while three—namely, the Victoria Caste and Gosha Hospital for Women, Rājā Sir Rāmaswāmi Mudaliyār's Maternity Hospital, and the Native Infirmary attached to the Monegar Choultry—are supported by private subscriptions, aided in the case of the two latter by grants. Of the five dispensaries, one is maintained by Government, two by the municipality, and the other two by public subscriptions and grants. The General and Maternity Hospitals are exceptionally well found and well managed. The total number of beds available in these institutions is 1,371, of which 473 are in the General Hospital. In 1903 an aggregate of 19,000 in-patients (7,000 at the General Hospital) and 233,000 out-patients (61,000 at the General Hospital) were treated in them, and 18,000 operations (6,000 at the General Hospital) were performed. The total expenditure was Rs. 5,40,000, of which Rs. 4,35,000, or 80 per cent., was provided by Government, and Rs. 32,000 by the municipality. The main items were establishment (Rs. 1,58,000), buildings (Rs. 1,33,000), miscellaneous charges (Rs. 1,07,000), and diet (Rs. 92,000).

The Lunatic Asylum in Kilpauk, which is in many ways a model institution, had an average daily population of 320 males and 106

females in 1904. Of the 136 admissions in that year, 16 were Europeans or Eurasians and the remainder natives. The cost of maintenance was Rs. 1,05,000, of which Rs. 36,000 was spent on establishment and Rs. 28,000 on diet of patients.

Vaccination is compulsory in the city and is attended to with more than usual care, the number of successful operations in 1903–4 being 52 per 1,000 of the population, compared with an average for all municipalities of 50 per 1,000. At Guindy, near Madras, is the King Institute of Preventive Medicine, from which animal vaccine is supplied in sealed tubes throughout the Presidency, and where bacteriological work and the preparation of various sera are also carried on.

[*Madras Manual of Administration*, 3 vols. (Madras, 1885 and 1893); Talboys Wheeler's *Madras in the Olden Time*, 3 vols. (Madras, 1861); Mrs. Penny's *Fort St. George* (1900); Mr. Leighton's *Vicissitudes of Fort St. George* (Madras, 1902); Mr. Foster's *Founding of Fort St. George* (1902); and Colonel Love's *List of Pictures in Government House, Madras* (Madras, 1903).]

Madura District (*Madurai*).—District in the southern portion of the east coast of the Madras Presidency, lying between 9° 6′ and 10° 49′ N. and 77° 11′ and 79° 19′ E., with an area of 8,701 square miles. It consists of a section of the plain stretching from the eastern slope of the mountain range of the Western Ghāts to the sea, and includes the drainage basin of the Vaigai river. Part of its south-western and western border abuts on the Western Ghāts, here known as the Travancore Hills, which divide the District from the Native State of Travancore; and the north-western boundary runs over the highland plateau which separates two other sections of the same range, the Anaimalais and the Palni Hills, from one another. The Palnis lie wholly within the limits of the District and are its most notable mountains. On the north Madura is bounded by the Districts of Coimbatore and Trichinopoly and the Native State of Pudukkottai; on the north-east by Tanjore; on the east and south-east by the waters of Palk Strait and the Gulf of Manaar; and on the south and south-west by Tinnevelly District.

Physical aspects.

Its general aspect is that of a level plain, sloping gradually to the sea on the south-east and bisected by the channel of the Vaigai river. To the west this plain is broken by the PALNI HILLS and other smaller spurs and outliers of the Western Ghāts, and by isolated hills and masses of rock scattered throughout. The Palnis project across this part in an east-north-easterly direction for a distance of 54 miles, and are about 15 miles wide on an average. To the south, and almost parallel with these, the Varushanād hills and the Andipatti range also run out from the Western Ghāts in a north-easterly direction. They extend

for a distance of 40 miles, and between them and the Palnis lies the upper portion of the valley of the Vaigai, known as the Kambam Valley. This is kept well wooded and green by the perennial streams which flow down into it from the slopes of the adjoining hills, and, except in the feverish season, it is one of the pleasantest parts of the District. Farther east, and altogether separate from the ranges already described, is a confused series of smaller lines of hills, known respectively as the Sirumalais, the Karandamalais, the Nattam, and the Alagar hills. The highest peak among these attains an elevation of nearly 4,400 feet. On the Sirumalais fruit is largely grown and there are several coffee estates, but the range is almost uninhabited on account of the malignant fever which lurks in its slopes. Among isolated hills may be mentioned the ancient rock fortress of Dindigul, the Anaimalai ('elephant hill'), the Pasumalai ('cow hill'), and the Skandamalai, sacred to the god Subrahmanya. The last three are in the neighbourhood of Madura city, the head-quarters of the District.

The river system of the District is of a simple character. The principal stream is the Vaigai already mentioned, which has its origin in the Varushanād hills. Near the village of Sholavandān this bends to the south-east, and thence flows right across the centre of the District and empties itself into the sea at Attankarai, east of Rāmnād. Next in importance are the Gundār and the Varshalei. The former rises in the Varushanād and Andipatti hills, and flows in a direction nearly parallel to the Vaigai. At Kamudi it is crossed by a massive earthen dam, and a channel is taken off which irrigates part of the Mudukulattūr *tahsīl*. The Varshalei drains the eastern slope of the Nattam hills, flows past Tiruppattūr, and enters the sea by several mouths between Uriyūr and Tondi. The northern slopes of the Palnis are drained by a lesser system of rivers, which flow northwards in almost parallel courses. The principal of these are the Amarāvati, the Shanmukhanadī, the Nangānji, and the Kodavanār. All of them are drainage channels rather than perennial rivers. In the rainy season they come down in headlong torrents, but for most of the year they dwindle into trickling streams.

The rocks of Madura District consist chiefly of foliated biotite gneiss, probably in reality a gneissose granite, in which are masses of granular quartz rock, also probably of igneous origin. At certain localities, such as Pandalugudi and Tirumāl, bands of coarsely crystalline limestone occur in the gneiss. Charnockite is found in the western part of the District, the Palni hills being entirely composed of that rock. In the Varushanād Hills are hornblende schists and granulites, penetrated by veins of mica-bearing pegmatite. Sub-recent calcine grits of marine origin form a fringe along the coast from Cape Comorin to the channel between the mainland and the island

of Pāmban. Laterite covers a considerable part of the District. Further particulars will be found in Mr. Bruce Foote's account in *Memoirs, Geological Survey of India*, vol. xx.

The botany of the central portion of the District presents no points of special interest. Along the coast occur areas covered with the red-sand wastes (*teris*), which are so extensive in Tinnevelly, and with brackish swamps. These exhibit the flora characteristic of such tracts. The most interesting region botanically is the Palni range. Dr. Wight visited this in 1836, and recorded his observations in the *Madras Journal of Literature and Science* the next year. He says that in the course of about fifteen days he collected little short of 1,500 species of plants; and he thought that the flora of the hills would be found on examination to include almost four-fifths of the whole flora of the Presidency, and to present a vast number of species peculiar to the locality. In the same journal for 1858, Colonel Beddome published a list of more than 700 species of plants (exclusive of *Compositae*, *Gramineae*, and Cryptogams not determined) which he found on this range. It is thus evident that the locality is well worthy of detailed examination by botanists.

The hills to the west contain all the larger game usually found in such localities: namely, tigers, leopards, bears, elephants, bison (*gaur*), Nīlgiri ibex, *sāmbar*, and spotted deer. The opening up of neighbouring areas to the planting of coffee and the ravages of wild dogs and native *shikāris* are, however, reducing the game. In the plain country antelope are common, especially towards the sea.

The climate is hot, dry, and variable. There is no real cold season in the plains, but the air is pleasantly cool from November to February. The mean annual temperature at Madura city is 84°, compared with 83° at Madras. It is considerably less on the island of Pāmban, at places like Dindigul, and in the Kambam Valley. The climate of the upper Palnis is probably one of the finest in India, resembling that of the Nīlgiris. The District is not regarded by the natives as healthy, on account of the prevalence of malarial fever.

The annual rainfall of the District as a whole, omitting the Palnis, usually varies from 26 to 36 inches, averaging about 30 inches. Of this, more than half is registered during the north-east monsoon in the last three months of the year, about one-fourth during the four months of the south-west monsoon from June to September, and only one-seventh during April and May. The distribution, however, varies very considerably in different parts of the District, especially during the south-west and north-east monsoons. During the first three months of the year, for example, the heaviest rain is to be expected along the sea-coast and among the hills that enclose the valleys in the west. The early showers of April and May are usually fairly abundant in the

latter tract, while they decrease in amount eastwards and towards Tinnevelly. In the south-west monsoon the only portion of the District which usually receives a fair supply is the centre. During the north-east monsoon the rainfall on the coast in the Rāmnād estate is very heavy, and over the rest of the District is considerable. Speaking generally, the supply is much below the average only in the part adjoining Tinnevelly, while in the central and eastern parts it is above the normal.

The famines from which the District has suffered are referred to below. Other natural calamities have been few. The worst were a cyclone in 1709, which did great damage, and the floods which followed the 1877 famine in the Rāmnād estate. In December, 1877, the Gundār river rose to a great height and flooded parts of Tiruchuli village, swept away 1,000 yards of the embankment near Kamudi lower down, and then made for the sea, breaching nearly every tank in the south-west of the *zamīndāri* and covering the whole country with one broad sheet of water.

History.

Perhaps no District in the Presidency can boast of a more continuous ancient history than Madura. Together with Tinnevelly and portions of Travancore State and Trichinopoly, it formed the dominion of the PĀNDYAS, who are said to have taken their name from Pāndu, the father of the Pāndava brothers, the heroes of the Mahābhārata War, and whose kingdom is known to have existed 300 years before the beginning of the Christian era. About the tenth century A.D., as is attested by numerous inscriptions and coins, the country passed under the CHOLAS, but it reverted to the Pāndyas some 300 years later. In 1310, like the rest of South India, it was raided by Malik Kāfūr, the general of Alā-ud-dīn of Delhi; but shortly afterwards, in 1372, the Muhammadans were driven out by the kings of Vijayanagar, who had just begun to establish themselves in power. Thereafter, for nearly 200 years, the history of the country is fragmentary and confused until, in the middle of the sixteenth century, the famous Naik dynasty of Madura came into prominence and ruled for 200 years. Viswanātha Naik, the founder of this line, was apparently the son of an officer of the Vijayanagar kings. He is said to have fortified Madura, bought Trichinopoly from the king of Tanjore, and quelled a formidable rebellion in Tinnevelly. He kept the local chieftains contented and the country quiet by founding in Madura and Tinnevelly what was afterwards known as the *poligār* system, under which the direct government of his possessions was entrusted to local chieftains, called *poligārs*, whose powers were almost absolute in their own districts so long as they paid their suzerain a certain tribute and provided a stated military force for service when called upon.

These *poligārs* figure largely in subsequent history, and some of their descendants are still *zamīndārs* of their original grants.

The greatest of the Naik dynasty was the famous Tirumala, the remains of whose buildings, especially his palace, the most splendid of its kind in Southern India, attest the magnificence of his tastes. Besides the present District of Madura, his territories comprised Tinnevelly, Trichinopoly (including Pudukkottai State), Salem, Coimbatore, and a portion of the State of Travancore. His gross revenue is said to have exceeded a million sterling. He had a leaning towards Christianity; and during his reign Robert de Nobili, the famous Jesuit, with his direct countenance and assistance, founded an important mission in Madura and made many converts.

On Tirumala's death in 1659, the kingdom began to break up. His successors were weak rulers; Muhammadan intrigues and invasions commenced; Sivajī, the founder of the Marāthā power in India, began his raid to the south; and Chikka Deva Rājā, king of the rising dynasty of Mysore, invaded Madura and soon after invested Trichinopoly. The one redeeming feature of this period of confusion and anarchy was the regency of queen Mangammāl, the most remarkable personage, next to Tirumala, in Madura history. The roads and avenues which she made and the choultries and temples which she built keep her name in grateful remembrance to this day.

Meanwhile the Nawābs of ARCOT had become powerful enough to attack the south, and Chanda Sāhib, son-in-law and chief minister of the Nawāb, Dost Alī, obtained Trichinopoly by cunning and Madura by force. The Naik ruler of the time thereupon called in the aid of the Marāthās of the Northern Deccan; and in 1739 they marched south, defeated and killed Dost Alī at the pass of Damalcheruvu between North Arcot and Cuddapah, levied an enormous indemnity from his son, captured and carried off Chanda Sāhib to Sātāra, overran Madura and Trichinopoly and put Marāthā governors in charge of both of them. This is the last scene in the history of the Madura kingdom. Henceforth it was split up into a number of small principalities which had no connected existence.

In 1743 the Sūbahdār of the Deccan drove out the Marāthās, and the country again came nominally under the rule of the Nawābs of Arcot. Twelve years later, the English first appeared upon the scene. Major Heron marched south to force Madura and Tinnevelly to acknowledge the Nawāb, Muhammad Alī, the Company's chief motive in sending him being the expectation that the tribute thus obtained by the Nawāb would help him to repay the money he owed for assistance in the Carnatic Wars. Little resistance was met with, and Madura and Tinnevelly Districts were taken and were rented for 15 lakhs to Mahfūz Khān, the Nawāb's brother. The disorderly behaviour of

the *poligārs* and the Kallans (the 'Colleries' of Orme) prevented him, however, from realizing his dues, and the Company therefore sent Muhammad Yūsuf, its commandant of sepoys, to assist him. The latter restored order to some extent, but in his turn rebelled, and was accordingly attacked by the Company's troops and taken and hanged in 1764. Anarchy and confusion once more followed, until in 1783 Colonel Fullarton marched into the country with a considerable force and finally quieted it. In 1790 the first English Collector of Dindigul was appointed, and in 1801 the rest of Madura was ceded to the Company in accordance with the treaty of that year with the Nawāb of Arcot.

The subdivision of Dindigul, which had for long been part of the possessions of the kingdom of Mysore, had been previously (in 1790) acquired by conquest from Tipū Sultān. The history of the *zamīndāris* of RĀMNĀD and SIVAGANGA, of which a sketch is given in the article on the former, also differs somewhat from that of the District proper. From the beginning of the nineteenth century the political history of Madura as it now stands merges into the story of revenue administration described below.

On the Palnis are found a large number of prehistoric dolmens or burial cairns. Evidence of a reliable nature shows that Greek and Roman soldiers served under the Pāndya kings; and from the fact that Roman coins have been found in large numbers in the bed of the Vaigai, it is inferred that a colony of Roman merchants may have settled on its banks. A large number of coins with Buddhist symbols and devices also attest the prevalence of Buddhism in the Pāndya country. The famous Siva temple at MADURA, the celebrated palace of Tirumala Naik in the same city, and the great temple at RĀMESWARAM are the chief objects of archaeological interest. These are described in the separate articles on those places.

Population.

The towns in the District number 21 and the villages 4,113. The population in 1871 was 2,266,615; in 1881, 2,168,680; in 1891, 2,608,404; and in 1901, 2,831,280. The decline in 1881 was due to the great famine of 1876–8, when the whole District, except the Melūr and Periyakulam *tāluks*, suffered severely. It is divided into the seven Government *tāluks* of KODAIKĀNAL, PALNI, DINDIGUL, PERIYAKULAM, MADURA, MELŪR, and TIRUMANGALAM, the head-quarters of which are at the places from which they are respectively named, and the two great *zamīndāris* of RĀMNĀD and SIVAGANGA. Statistical particulars of these areas, according to the Census of 1901, are shown in the table on the next page.

The chief towns are MADURA CITY, the administrative head-quarters of the District, and DINDIGUL and RĀMNĀD, the head-quarters of two of the revenue subdivisions. Of the total population, 2,550,783,

or 91 per cent., are Hindus by religion; 168,618, or 5 per cent., Musalmāns; and 111,837, or 3 per cent., Christians. The last are mostly Roman Catholics, and the Muhammadans are chiefly Sunnis by sect. Except in the Madura *tāluk*, where there is a very large urban population and the density is as high as 700 persons per square mile the pressure of the population on the soil is nowhere very great. The principal vernacular is Tamil, which is spoken by nearly 80 per cent. of the people, but 13 per cent. of them speak a corrupt form of Telugu and 4 per cent. Kanarese, while Patnūlī and Hindustāni are the vernaculars of two considerable sections.

Tāluk or *zamīndāri tahsīl.*	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Dindigul	1,122	1	209	430,524	384	+ 10·1	23,330
Palni	599*	1	117	214,972	392*	+ 10·2	12,689
Kodaikānal	...	1	15	19,677	...	+ 7·1	1,612
Periyakulam	1,520	3	83	320,098	211	+ 21·6	20,245
Melūr	485	1	98	154,381	318	+ 3·9	8,853
Rāmnād	2,104†	3	143	112,851	344†	+ 4·9	10,320
Tiruvādānai	...	1	809	155,346	...	+ 2·6	10,517
Paramagudi	...	1	375	142,665	...	+ 8·8	9,975
Tiruchuli	...	2	354	166,769	...	+ 1·5	14,671
Mudukulattūr	...	2	399	146,255	...	+ 8·2	9,142
Sivaganga	1,680‡	1	520	155,909	235‡	+ 6·4	13,236
Tiruppattūr	...	2	366	209,036	...	+ 4·5	21,319
Tiruppuvanam	...	...	66	29,261	...	− 2·1	2,271
Madura	446	1	283	308,140	691	+ 18·0	33,914
Tirumangalam	745	1	276	265,396	356	+ 0·3	12,968
Total	8,701	21	4,113	2,831,280	325	+ 0·3	205,062

* Includes Kodaikānal.
† Includes Mudukulattūr, Paramagudi, Tiruchuli, and Tiruvādānai.
‡ Includes Tiruppattūr and Tiruppuvanam.

The District contains a great variety of castes. The most numerous are the land-owning Vellālas (276,000), who are commonly known by their title of Pillai. Next come the Pallans (220,000), who are usually employed in agricultural labour. The Kallans (218,000) are responsible for most of the crime in the District. They are divided into ten main exogamous subdivisions which are territorial in origin. From time immemorial they have levied blackmail on the villagers as the price of abstaining from robbing them; but the people revolted against their exactions in 1893–6, when many of the Kallans were driven from the villages in which they had resided. Next in point of numbers among the castes of the District come the Idaiyans (153,000), the great shepherd community, who are generally styled Komans; the Valaiyans (140,000), a *shikāri* caste found mainly here and in Tanjore; the

outcaste Paraiyans (140,000); and the Agamudaiyans (125,000), who have a bad name for crime. These last closely resemble the Maravans, whose reputation for criminality is also notorious, but in their manners and customs they follow the Vellālas. Many of them are domestic servants of the Maravan *zamīndārs*. The Maravans (112,000) are found mainly in this District and Tinnevelly. They are usually cultivators, but are experts in cattle-lifting. They also take a prominent part in the dacoities committed in these two Districts, and were the leaders of the anti-Shānān riots occasioned in 1899 by the claims of the Shānāns (85,000), the great toddy-drawer caste of the Tamil country, to the right of entering Hindu temples. The Chettis number 81,000. The most interesting and distinctive subdivision of this community are the Nāttukottai Chettis, whose head-quarters are in the Tiruppattūr and Tiruvādānai *tahsīls*. They trade as far as Burma, the Straits Settlements, and Colombo, are shrewd men of business, possess much of the wealth of the District, and are noted for their gifts to temples and public charities. The Tottiyans number 67,000. Some of the *zamīndārs* belong to this caste. The Patnūlkārans (43,000), a weaving community which speaks Patnūlī (a dialect of Gujarātī) and is supposed to have emigrated from Gujarāt long ago, are found in large numbers in Madura city. Among the jungle tribes may be mentioned the Kunnavans and the Paliyans, whose ways and manners are even more primitive than the general run of these backward classes. The Semmāns are noteworthy as affording one of the few examples of hypergamy yet noticed on this coast.

The proportion of the population which depends directly on the soil is greater than usual, amounting to 75 per cent. The large number returned in the census statistics as having proprietary rights in land is most marked, exceeding the proportion in any other District in the Presidency, while on the other hand the proportion of the whole population which depends on agricultural labour is much below the average. The inference is that the agriculturist of Madura is usually the owner of the land he tills, and not merely a farm-labourer. Chiefly owing to the numbers of the Labbais, an enterprising Musalmān community, and the Nāttukottai Chettis, the proportion of those who live by commerce is nearly double the normal.

Of the Christian population of 112,000 (of whom all but 636 are natives), nearly 90,000 are adherents of the Roman Catholic Church. The work of the Madura Catholic Mission is now carried on in 1,060 villages, and it possesses 132 churches and 391 chapels. It is one of the most ancient and famous of all the missions of the South. As early as the beginning of the seventeenth century there was a Jesuit church in Madura, where a Portuguese priest ministered to a poor congregation of fishermen who had originally been converted by St.

Francis Xavier; and the roll of those who have worked in the District includes such names as Robert de Nobili (died 1656), John de Britto (martyred in 1693), and the learned Beschi, whose Tamil compositions won the admiration of the best scholars in that tongue.

The American (Congregational) Mission of Madura, established in 1834, numbers about 17,600 members, has 11 stations, and works in 506 villages. The chief strength of the mission lies in its schools and hospitals. It manages a second-grade college at Madura, 2 high schools, 8 boarding-schools, 18 schools for Hindu girls, and 174 day schools giving instruction to 8,000 pupils, of whom 1,100 are girls. Its annual expenditure amounts to Rs. 1,50,000. The Leipzig Lutheran Mission under a Swedish board was established in 1874. It has now 1,200 members, 16 churches, 13 schools, and 54 congregations.

Agriculture.

The predominant geological formation of the District is granite; and a gravelly bed of laterite, which is often quarried for building purposes, runs through the east from north to south. These formations determine the nature of the soil in different parts. Very little detailed information is on record regarding conditions in the Rāmnād and Sivaganga *zamīndāris*; but over a considerable portion of the former and of the Tirumangalam *tāluk* the prevailing soil is of the black cotton (*karisal*) variety and the allied kinds called *kākarai*, *veppal*, and *pottal*. With this exception, the whole of the District is covered with red ferruginous earth, which, being often gravelly or stony in nature, is usually unfit for continuous cultivation or for the raising of the more valuable crops. Owing to the lack of perennial rivers from which a continuous supply of water could be drawn, the construction of tanks (artificial reservoirs) in which the rain is stored until it can be distributed to advantage has been a leading feature of the agriculture of the District from time immemorial.

A striking feature in Madura is the preponderance of *zamīndāri* tracts over those held on *ryotwāri* tenure. Deducting the former, for which no detailed returns exist, the area for which particulars are on record is 3,532 square miles, or 40 per cent. of the whole. Statistics of this for 1903–4 are shown in the table on the next page, in square miles.

Of the total area, 65 per cent. is arable, and of this area 84 per cent. is occupied; while of the occupied area 82 per cent. is under cultivation. It will thus be seen that a considerable amount is still available for the extension of holdings. About 83 per cent. of the total area cropped is devoted to the production of food-grains, cereals occupying about 74 per cent. and pulses 9 per cent. The cereals chiefly cultivated are rice, *varagu* (*Paspalum scrobiculatum*), *cholam* (*Sorghum vulgare*), *rāgi* (*Eleusine coracana*), and *cambu* (*Pennisetum typhoideum*). In the Melūr *tāluk* the area under pulses other than horse-gram (black, green, and red gram) is remarkably large. Industrial crops occupy

14 per cent. of the total area cultivated, the most important being cotton and the two oilseeds, gingelly and castor. Nearly 90 per cent. of the cotton is grown in Tirumangalam. The *tāluks* which raise the next largest amounts are Dindigul, Periyakulam, and Palni. Dindigul is famous for its tobacco, which is grown on a large area there and on considerable tracts in the adjacent *tāluks* of Periyakulam and Palni. On the slopes of the lower Palnis a good deal of coffee has been planted. In the *tāluks* bordering on Tinnevelly the black variety of *cholam* is cultivated somewhat extensively for fodder, being sown very thickly so as to induce a thin growth of the stalks. July, August, September, and October are the busiest months for the sowing of crops.

Tāluk.	Area shown in accounts.	Cultivated.	Irrigated.	Cultivable waste.	Forests.
Dindigul	795	533	75	67	88
Palni	328	267	70	25	3
Kodaikānal	413	39	5	18	210
Periyakulam	603	275	56	50	151
Melūr	485	253	91	43	105
Paramagudi (*ryotwāri* villages only)	4	3	1	...	...
Madura	432	246	132	56	49
Tirumangalam	472	344	52	42	13
District total	3,532	1,960	482	301	619

The variations in the area of the holdings of Government land and in the land revenue of the District during the period from 1871–2 to 1896–7 exhibit an increase of 22 per cent. and 24 per cent. respectively, which shows that assessment has advanced at practically the same rate as the increase in the area cultivated. The great famine of 1876–8 caused about 10 per cent. of the holdings to be abandoned, but naturally the land revenue demand did not decrease in so large a proportion. Since that date the area and assessment have more than recovered, the extension in the area of holdings being especially marked.

Little has been done to improve the quality of the crops grown. During the sixteen years ending 1904, 6 lakhs has been advanced under the Land Improvement Loans Act. In 1901 there was a large increase in the sums granted under the Agriculturists' Loans Act, which is attributed to extensions of 'wet' cultivation in the tracts served by the Periyār Project referred to below. Before a field can be utilized for 'wet' cultivation considerable expenditure is necessary to level it. 'Wet' cultivation also requires more bullocks than 'dry.'

Stock is maintained in the largest proportion to the extent of cultivation in the Kodaikānal and Melūr *tāluks*. The average area tilled

by a pair of bullocks is largest in Tirumangalam, where the black soils prevail, and is comparatively small in Madura and Periyakulam, owing apparently to the large proportion of 'wet' lands there. Fine herds of cattle are found in the Palnis, where there is abundant grazing land. Elsewhere the country is generally deficient in pasturage for the greater part of the year. More attention is now being paid to the breeding and selection of stock, but no fodder is grown specially for the use of cattle except in Tirumangalam. A very large cattle fair is held at Madura during the annual festival in Chittrai (April–May), and fairly large weekly fairs at Madura and Dindigul. The Pulikulam breed of cattle, now reared at Ayyamkottai, is well-known locally. They are very compact animals and good trotters. Large and strong cattle are bred by some *zamīndārs* for the 'jellicuts,' the distinctive sport of Madura District. This consists in tying a valuable cloth to a bull's horns and challenging any one to remove it. The large crowds present, the noise and shouting and the number of loose cattle which are dashing about, make the bulls which carry the cloths extremely wild and excited, and the operation of removing the cloths is sufficiently hazardous. The plan of penning cattle at night on the fields for the sake of manure is prevalent. The ponies bred are weedy but extremely hardy. The sheep and goats of the District possess no points of especial interest.

The total amount of land watered from the various sources of irrigation in 1903–4 was 482 square miles. Of this, 167 square miles, or nearly 35 per cent., were supplied from Government canals; 175 square miles (36 per cent.) from tanks, or artificial reservoirs; and 133 square miles from wells. These last are chiefly found in the Palni *tāluk*, but are also common in Dindigul and Periyakulam, and number 42,000 in the whole District. In Palni they irrigate on an average $6\frac{1}{2}$ acres each. The number of tanks is 4,081, which is more than in any other District in the Presidency. There are 181 river channels, 282 spring channels, and 40 anicuts. During the last five years the successful introduction of the PERIYĀR PROJECT has greatly advanced agriculture in the District. Briefly stated, it consists in damming up the Periyār ('big river'), which formerly ran uselessly down to the west coast through country which already had a sufficient supply from rainfall, and turning it through the Western Ghāts by a tunnel down to the eastern side of that range, where water for irrigation was the one thing necessary to the prosperity of the country.

The area under 'reserved' forests, including 10 square miles of 'reserved' lands, is 619 square miles. The staff of the department consists of a District Forest officer and five rangers, under each of the latter of whom are two foresters. The ranges are Kambam, Kodaikānal, Tāndikudi, Palamedu, and

Forests.

Kanavāypatti. The Kambam range is steep and rocky and covered with boulders, and there is little soil except in the valleys. The forests in it contain little of the more valuable timbers, such as teak (*Tectona grandis*) and *vengai* (*Pterocarpus Marsupium*); but in the Vannatipārai Reserve a small teak plantation has now been made.

In the Kanavāypatti and Palamedu ranges, the work is conditioned by the proximity of the towns of Madura and Dindigul on the South Indian Railway and of the 'wet' land under irrigation from the Periyār Project. The Forest department contracted with the South Indian Railway to supply it during 1903-4 with 12,500 tons of fuel. The forests are situated either on small isolated hills or on ranges of no considerable height, and the chief tree is *Albizzia amara*. On the Sirumalais, Karandamalais, and Perumalais are plantations containing a certain amount of vegetation, but the other hill-tops are narrow and bare ridges.

The Kodaikānal range comprises the slopes of the Palni Hills facing the Palni and Periyakulam *tāluks*. A fair amount of *vengai* and *nīm* stands on these, but the forests have been injured by reckless felling in the past. There is little demand for timber, owing to the supply from Travancore through the Kambam Valley. Small 'coupes' of from 40 to 50 acres are opened out periodically, to meet the local demand for fuel and bamboos. The forest revenue in 1903-4 was Rs. 1,73,000, and is rapidly increasing.

Minerals.

At Kottāmpatti in the Melūr *tāluk* the laterite beds are remarkably rich in iron in many places. In the Vaigai river and at Palkanūttu in Dindigul there are auriferous sands of poor quality, which are probably derived from denudation of the Palni Hills and are found only in limited areas. Salt is manufactured at certain stations on the sea-coast by solar evaporation. Near Pandalugudi in the Tiruchuli *tahsīl* there are traces of plumbago in crystalline limestone. The quarries of Puliarpatti in Tiruppattūr supply a large quantity of hornblendic rock used for pillars in temples, while at Aruppukkottai in the Rāmnād *zamīndāri* a splendid rich red granite is found which quarries well. At Kalligudi *chattram* in Tirumangalam a pale granitoid with many pink garnets is largely quarried, and close to Mānāmadurai and Sivaganga in the Sivaganga *zamīndāri* typical laterite conglomerate of good quality occurs. In the neighbourhood of Kokulam in Tirumangalam important beds of crystalline limestone of great beauty are found. On Pāmban Island there is an upraised coral reef; and on the coast eastward from Kīlakarai, south of Pāmban, marine shelly limestone and calcareous sandstone occur.

The most important art in the District is the silk-weaving carried on

by the Patnūlkārans of Madura city. But the industry is not flourishing, owing to the extensive importation of machine-made goods from England and the competition of gold thread from France. Raw silk is obtained from Calcutta, Bombay, Kollegāl in Coimbatore District, and Bangalore and Mattūr in Mysore. In dyeing, *kamela* powder (collected from the glands on the surface of the capsules of the tree *Mallotus phillippinensis*) and lac are used for the production of yellow and red respectively. Aniline dyes are now largely resorted to, as the preparation of vegetable colours is a very tedious operation; but though they give lustre and brilliancy, they are not so permanent as the indigenous dyes. Madura was once famed for the preparation of a deep red vegetable dye of great beauty, but this is now hardly ever made. The weaving industry in Dindigul was formerly important, but is declining owing to the importation of fabrics from Bangalore. In Paramagudi some of the weavers have taken to other occupations. In the Rāmnād *tahsīl* cotton fabrics are made and sold locally. Coarse woollen blankets (*kamblis*) are manufactured to a small extent by Kuruba women in some twenty villages in the Melūr, Dindigul, and Palni *tāluks*. The process from shearing the sheep to completion of the blanket lasts a month.

Trade and communications.

The Madura Mills Company employs a daily average of 1,760 hands at Madura in cotton-spinning; the out-turn in 1903-4 was 16,000 lb. of yarn. Cotton-cleaning is carried on in Mudukulattūr and Tiruchuli. A Madras European firm have a large cigar factory in Dindigul, at which 746 hands are employed. There are three or four lockmakers at the same place whose handiwork is excellent. Tanning is also carried on there to a considerable extent by small employers. Bell-metal cooking vessels and lamps are made at Mānāmadurai and Dindigul.

The commercial centre of the District is Madura city, which is the second largest town in the Presidency. The trade there is extensive, and the railway receipts are larger than at any other station on the South Indian Railway. Commerce is chiefly carried on with the adjacent Districts of Tinnevelly, Coimbatore, and Trichinopoly. A large amount of cotton is sent by cart from Coimbatore through Madura to the cotton-presses at Virudupatti and Tinnevelly, and considerable quantities go to the same places from within the District. Cotton and silk fabrics are largely exported, the raw silk of which the latter are made being imported from Mysore. Much tea is conveyed through the District from the Kannan Devan hills in Travancore on its western border. Other exports are rice, sheep and cattle, tobacco, spices, and cardamoms. Imports include salt from Tinnevelly, timber from Burma, which comes to the seaports on the coast, and from Travancore and the West Coast Districts.

Most of the internal trade is effected at the numerous weekly markets managed by the local boards, the receipts from the fees collected at which amounted in 1903-4 to Rs. 42,000, or more than in any other Madras District except Coimbatore. A large traffic in firewood is carried on between Madura city and the neighbouring hills, and leaf-manure is carted in large quantities to the 'wet' lands irrigated by the Periyār scheme. A considerable trade is conducted between the villages on the Palnis and the adjacent towns in the plains in jungle products, such as bamboos, honey, dyes, and tans. The chief agents of commerce are the Chettis and Labbais already referred to.

The sea-borne trade of the District passes through the four ports of Devipatam, Kīlakarai, Pāmban, and Tondi, the value of their aggregate trade in 1903-4 being Rs. 1,66,000, Rs. 1,80,000, Rs. 5,93,000, and Rs. 8,24,000 respectively. These deal chiefly with other ports in India and with Ceylon. At Devipatam the chief import is rice, and the principal export coloured cotton piece-goods; Kīlakarai trades mainly in rice; Pāmban imports rice more than any other commodity, but its largest export is cattle, sheep, and goats to Ceylon; Tondi does a large trade in teak from Burma, and its principal export is rice.

The main line of the South Indian Railway (metre gauge) runs from the Trichinopoly and Madura border to Madura city and thence to the Tinnevelly border, a distance of nearly 100 miles. The first of these two sections was opened in 1875, and the second in 1876. In 1902 the branch from Madura to Pāmban Island was completed as far as Mandapam, a village on the coast on the mainland side of the narrow strait which divides the island from the shore, a distance of 90 miles. This line has done much to open up the Rāmnād country, but communications by railway are still much needed in the eastern *tahsīls* of that *zamīndāri*. A proposal has accordingly been made that a line should be constructed from Rāmnād via Tiruvādānai, Devakottai, and Kāraikkudi to Kānnadukāttan on the north-eastern frontier of the District, provided that the Pudukkottai State consents to carry it on from Kānnadukāttan through Pudukkottai town to Tanjore. Should the State not consent to this, the alternative course would be to take the line to Arantāngi in Tanjore District, and link it with the Tanjore District board's railway to Arantāngi. A line has also been suggested from Dindigul to Palni, provided that the Coimbatore District board continues it from the latter town to Coimbatore via Udamalpet. Another proposal contemplates a light railway from Ammayanāyakkanūr on the main line of the South Indian Railway to Kuruvanūttu at the foot of the Palni Hills, with branches to the sanitarium of Kodaikānal and to Bodināyakkanūr.

The total length of metalled roads in the District is 624 miles,

and of unmetalled roads 608 miles; all are maintained from Local funds, except 24 miles kept up by the Public Works department. Avenues of trees have been planted along 1,091 miles. The main lines are those from Madura city, leading to Pudukkottai through Melūr and Tiruppattūr, to Mandapam through Rāmnād, to Trichinopoly through Melūr, to Aruppukkottai, to Allinagaram, and to Ammayanāyakkanūr; and those from Ammayanāyakkanūr to Pīrmed, from Dindigul to Palni, and from Dindigul to Vattānam. On the lower Palnis the Attūr *ghāt* road has been opened between Attūr and Kannanūr. The District is thus fairly supplied with means of communication, except in the Rāmnād *zamīndāri*; there the roads are few and bad, and in the rainy season practically impassable.

Famine.

So far as recorded information goes, the District does not appear to have been seriously affected by any bad season prior to 1865. During the famine of 1866–7 the average number of people in receipt of relief during eleven months was 4,000, of whom one-third were employed on works and two-thirds relieved gratuitously. The next famine was that of 1876–8. During the nineteen months, December, 1876, to June, 1878, the average number of persons relieved by Government was 28,000. Madura was situated on the southernmost limit of distress. The maximum number relieved during any one month was 109,000 in September, 1877. The north-east monsoon of 1892–3 was very deficient; and the necessity for carrying out relief works on a large scale throughout the Rāmnād *zamīndāri* was only obviated by a very large migration of the inhabitants to the neighbouring rich District of Tanjore and to Ceylon, and by a fair fall of rain in March, 1893, which gave succour to the residue.

Madura has three safeguards against famine: namely, the railway, which did invaluable service in 1876–8 by bringing rice from Tuticorin, and which now runs farther to Mandapam; the Periyār Project; and the readiness with which the people emigrate to Ceylon when the seasons are bad.

Administration.

For general administrative purposes the District is grouped into four subdivisions. Dindigul and Rāmnād are in charge of Covenanted Civilians, and Madura and Melūr are usually in charge of Deputy-Collectors recruited in India, though the latter is often assigned to the Assistant Collector. The Dindigul subdivision comprises the DINDIGUL, PALNI, PERIYAKULAM, and KODAIKĀNAL *tāluks*; Rāmnād comprises the *zamīndāris* of RĀMNĀD and SIVAGANGA, the island of PĀMBAN, and a few Government villages; Madura comprises the MADURA and TIRUMANGALAM *tāluks*; and the Melūr Deputy-Collector administers the Melūr *tāluk* and carries on the magisterial work of Madura city. The Rāmnād and Sivaganga

zamīndāris are subdivided into the eight *zamīndāri tahsīls* of Mudukulattūr, Paramagudi, Rāmnād, Sivaganga, Tiruchuli, Tiruppattūr, Tiruppuvanam, and Tiruvādānai, each in charge of a deputy-*tahsīldār*. At Dindigul, Madura, Melūr, Palni, Periyakulam, and Tirumangalam, there is a *tahsīldār* assisted by a stationary sub-magistrate. Subordinate to these *tahsīldārs* are deputy-*tahsīldārs*, with head-quarters at Uttamapālaiyam, Vedasandūr, Nilakottai, Madura city, and Usilampatti. Another independent deputy-*tahsīldār* is stationed at Kodaikānal. The superior staff of the District consists of the usual officers.

Civil justice is administered by the seven District Munsifs of Madura, Dindigul, Periyakulam, Paramagudi, Sivaganga, Mānāmadurai, and Tirumangalam (the court of the latter being at Madura city), by two Subordinate Judges (Madura East and West), and by a District Judge. The village headmen have the usual civil powers in petty cases. In 1904 as many as 10,400 suits were filed before them. Litigation is more than usually common.

Thefts, house-breaking, dacoities, and cattle-lifting are the chief criminal offences. The system of giving *tuppu-kūli*, or 'clue wages,' for the recovery of stolen property, instead of reporting the theft to the police, is very general and greatly hinders the detection of crime. The most noted thieves are the Kallans, who are experts in cattle-lifting, and will often travel forty miles in a night. The cattle they steal are either returned to their owners on payment of *tuppu-kūli* or sold across the border in Tinnevelly and Coimbatore, or even sometimes conveyed to Ceylon.

In the sketch already given of the political history of Madura, it has been seen that from the sixteenth century the system of government was feudal, the *poligārs* enjoying large estates and collecting the revenue in an arbitrary fashion. It has also been mentioned that the history of the province of Dindigul differed from that of the rest of the District until this latter came into British hands, Dindigul having been acquired by conquest from Tipū Sultān in 1790 and the remainder of Madura having been finally ceded to the British in 1801. The revenue history of Madura proper is consequently distinct from that of Dindigul, while that of both differs again from the course of events in the two *zamīndāris* of Sivaganga and Rāmnād, which had long been under the rule of the Setupatis or chiefs of the latter place. Mr. Macleod was the first Collector appointed to the province of Dindigul. The system of administration adopted at first consisted in retaining the land revenue under the direct management of the officers of Government. This did not succeed, and the receipts dwindled to a very low figure. Mr. Macleod tendered his resignation in 1794, and soon afterwards the province was leased out to renters for a term of five years. In 1796 Mr. Hurdis took charge. He

concluded a survey of the greater part and introduced a system of settlement which, though it broke down at first because the assessments were too high, proved more satisfactory after it had been improved and elaborated. On the acquisition of the rest of Madura in 1801, Mr. Hurdis was made Collector of the whole District so constituted, including Dindigul. For the next three years the system of renting out the villages seems to have prevailed. In 1804–5, however, a settlement founded upon the money assessments introduced by Mr. Hurdis was made with each individual ryot. In 1807–8 triennial leases were granted to the village communities. These were failures, and in 1810–1 the system of settling with each ryot was reverted to. In 1814–5 this *ryotwāri* tenure was formally adopted in both Dindigul and Madura proper, and has continued in force from that date. The District was resurveyed between 1880 and 1885, and settled between 1885 and 1893. The survey showed that the old accounts had understated the area in occupation by 8 per cent., and the settlement resulted in an increase of one per cent. in the land revenue. The average assessment per acre on 'dry' land is now Rs. 1–1–8 (maximum Rs. 2, minimum 4 annas), and that on 'wet' land Rs. 4–1–9 (maximum Rs. 8–8–0, minimum Rs. 2–8–0).

The revenue from land and the total revenue in recent years are given below, in thousands of rupees :—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	27,06	29,25	35,06	36,55
Total revenue . .	34,04	43,00	56,09	60,67

Outside the five municipalities of MADURA, DINDIGUL, PALNI, PERIYAKULAM, and KODAIKĀNAL, local affairs are managed by the District board and the six *tāluk* boards of Madura, Melūr, Tirumangalam, Sivaganga, Rāmnād, and Dindigul. The areas in charge of the first five of these correspond with the *tāluks* and *zamīndāris* of the same names, and that controlled by the last comprises the *tāluks* of Dindigul, Periyakulam, Palni, and Kodaikānal. The total expenditure of these boards in 1903–4 was about 7 lakhs, the principal items of outlay being roads, medical institutions and sanitation, and the upkeep of schools. Their income is derived mainly from the cess on land. The affairs of 37 of the smaller towns are managed by Union *panchāyats* established under Act V of 1884, which have power to raise revenue from a tax on houses.

The police are in charge of a District Superintendent, with headquarters at Madura city, and an Assistant Superintendent at Rāmnād.

The force comprises 22 inspectors, one European head constable for the reserve police, 153 other head constables, and 1,069 constables. There are 107 police stations, and the reserve police at head-quarters number 131. Punitive police forces are at present quartered at Aruppukkottai and Kamudi, in consequence of the participation of the inhabitants in the anti-Shānān riots of 1899. The village police number 659 *talaiyāris*, and 50 road *talaiyāris* are employed to guard certain spots along the main routes. The District jail, at Madura city, has accommodation for 455 prisoners, while 18 subsidiary jails have accommodation for 299 prisoners and a daily average of 116. The chief industry in the Madura jail is cotton-weaving. Coir and grass matting are also made, the former chiefly for the Public Works department.

According to the Census of 1901, Madura stands sixth among the Madras Districts in point of literacy, and about 7 per cent. of the total population (14·5 males and 0·5 females) can read and write. The *tāluks* which rank highest are Madura, where 11 per cent. of the people are literate, and Kodaikānal. The position of this latter is, however, largely due to the number of Europeans and Eurasians who reside in its head-quarters station. The total number of pupils of both sexes under instruction in 1880–1 was 20,971; in 1890–1, 42,506; in 1900–1, 63,087; and in 1903–4, 72,211. On March 31, 1904, there were in the District 1,890 educational institutions of all kinds, of which 1,274 were classed as public and 616 as private. The former included 1,230 primary, 33 secondary, and 9 special schools, and the 2 Arts colleges at Madura city. Four of them were maintained by the Educational department, 83 by the local boards, and 7 by the municipalities, while 708 were aided from public funds and 472 were unaided. The girls in them numbered 4,539, and 690 more were in private elementary schools. The number of boys in primary classes is 24 per cent. of those of school-going age, and the corresponding percentage for girls is 2. Among Musalmāns the corresponding percentages are 77 and 5. About 5,000 Panchamas are being educated at 136 schools chiefly intended for that class. The total expenditure on education in 1903–4 was 3·68 lakhs, of which 1·29 lakhs was derived from fees. Of the total, 57 per cent. was devoted to primary education.

There are 41 medical institutions in the District, with accommodation for 183 in-patients. The new municipal hospital in Madura city, which cost more than a lakh, is the largest. The Albert Victor Hospital, belonging to the American Mission, is a splendidly equipped building with accommodation for 44 in-patients. In 1903, 3,400 in-patients and 437,000 out-patients were treated, and 16,000 operations were performed in all these institutions taken together. The total

expenditure was Rs. 1,00,00, two-thirds of which was met from Local and municipal funds.

The number of persons successfully vaccinated in 1903–4 was 77,000, or 28 per 1,000 of the population, compared with the Presidency average of 30. Vaccination is compulsory in all the municipalities and Unions.

[W. Francis, *District Gazetteer* (Madras, 1906).]

Madura Subdivision.—Subdivision of Madura District, Madras, consisting of the *tāluks* of MADURA and TIRUMANGALAM.

Madura Tāluk.—*Tāluk* in the District and subdivision of the same name, Madras, lying in the centre of the District, between 9° 45′ and 10° 12′ N. and 77° 51′ and 78° 18′ E., with an area of 446 square miles. The population in 1901 was 308,140, compared with 261,195 in 1891. It contains one town, MADURA CITY (population, 105,984), the head-quarters and the second largest municipality in the Presidency; and 283 villages. The demand for land revenue and cesses in 1903–4 amounted to Rs. 6,40,000, excluding *peshkash* (Rs. 3,000) paid by *zamīndāri* estates. The chief source of the agricultural prosperity of the *tāluk* is the water of the PERIYĀR PROJECT, since the advent of which a large extension of 'wet' cultivation has taken place. Through the *tāluk* runs the VAIGAI river, and it is bordered on the north and west by the Sirumalai and Nāgamalai hills.

Madura City.—Head-quarters of the District and *tāluk* of the same name, Madras, situated in 9° 55′ N. and 78° 7′ E., on the south bank of the Vaigai river, and on the main line of the South Indian Railway, 345 miles from Madras city. A branch railway has recently been opened to Mandapam, on the end of the tongue of land which runs out into the sea to meet the island of Pāmban. The population in 1871 was 51,987; in 1881, 73,807; in 1891, 87,428; and in 1901, 105,984. It is now the second largest town in the Presidency. Of the total inhabitants in 1901, 93,103 were Hindus, 9,122 Musalmāns, and 3,750 Christians. Being the District head-quarters, it contains the usual offices and staff. Most of the residences of the European officials were formerly in the city among insanitary surroundings, but of late years dwellings for some of them have been constructed in a higher and healthier situation on the opposite bank of the Vaigai.

The history of Madura city is largely that of the District, the religious and political life of which has from time immemorial centred in it. The earliest mention occurs in the times of the ancient PĀNḌYAS, some centuries before the Christian era, and the place reached the culmination of its prestige in the middle of the seventeenth century under the Naik kings who contributed so much to its architectural adornment. Little is known of its early history. The *Sthala Purāna* (local chronicle) preserved in the great temple gives a mythical account of

the foundation of that building and of the town; but the mists which enshroud the origin of the place hardly lift for any length of time until the fourteenth century, when (like the rest of Southern India) Madura was subjected to an inroad from the Muhammadans of the north. They seem to have treated its inhabitants with the greatest cruelty, and they sentenced the great temple of the city to destruction. The outer wall, with its fourteen towers, was pulled down, and the streets and buildings which it protected were destroyed. The two shrines of Sundareswara and Mīnākshi were, however, spared. The people of Madura were at last freed from the yoke of foreign despotism by Kampana Udaiyār (1372); and after the expulsion of the Musalmāns the priests of Siva regained their revenues and rebuilt the four lofty *gopurams* or tower-gateways which now stand in the outer wall of the temple. The middle of the sixteenth century saw the foundation of the Naik dynasty already referred to; and the Sahasra-stambha Mantapam, or Hall of a Thousand Pillars, one of the principal structures in the building, was erected by Arya Naik Mudali, the general and minister of Viswanātha, the first ruler of that line. The temple forms a parallelogram 850 feet long from north to south by 750 feet broad, surrounded by nine *gopurams*, one of which is 150 feet high. These are conspicuous features in the landscape for miles around. The building is profusely ornamented with sculpture and paintings, and contains a number of valuable jewels. The groups of figures carved from single huge stones in the Hall of a Thousand Pillars and elsewhere are marvels of industry and elaboration. The temple is sacred to Siva in his form Sundareswara and to the local goddess Mīnākshi.

The other important buildings of Madura are all associated with the name of Tirumala Naik, who reigned from 1623 to 1659. The chief of these is his palace, the most perfect relic of secular architecture in the Madras Presidency. The District Court and other offices are now located in this building, which has been successfully restored by Government. The main structure consists of two parts, an open court and a lofty hall. The former measures 244 feet east and west by 142 feet north and south, and is surrounded on all sides by arcades of very great beauty. The pillars which support the arches are of stone, 40 feet in height, and are joined by foliated brick arcades of great elegance of design. The whole of the ornamentation is worked out in the exquisitely fine stucco called *chunām*, made from shell-lime, which is characteristic of the Presidency. On one side of the court stands an apartment which was formerly the throne-room of the palace. It is an arcaded octagon, covered by a dome 60 feet in diameter and the same in height. On another side is a splendid hall 120 feet by 67 feet and 70 feet high to the centre of its roof, one of the chief peculiarities of which is the resemblance of its style to Gothic

architecture. Next in importance to this palace is the Vasanta or Pudu Mantapam, which is said to have been built as a summer retreat for the god Sundareswara. It consists of a hall 333 feet long by 105 feet wide. The roof is flat and rests on four rows of stone pillars, all of which are different in design and are elaborately decorated with the characteristic images and emblems of the Hindu religion, life-size figures, and conventional carving. On the northern bank of the Vaigai stands the Tamakam, a building of quaint semi-Moorish architecture, said to have been erected as a pleasure-house from which to view combats between wild beasts. It is now the official residence of the Collector. Lastly, the Teppakulam, a great tank about a mile and a half east of the town, is also assigned to the time of Tirumala. This reservoir is a perfect square, measuring 1,200 feet each way. Its sides are faced with granite and surmounted by a handsome parapet, also of granite, beneath which runs a continuous paved gallery. In the centre rises a square island with a lofty domed temple in the middle and a tiny shrine at each corner. Once a year the tank is illuminated with 100,000 lights.

Madura city was constituted a municipality in 1866. The receipts and expenditure during the ten years ending 1902–3 averaged Rs. 1,49,000 and Rs. 1,74,000 respectively. In 1903–4 the income was Rs. 2,32,000, including water tax (Rs. 28,000), the tax on buildings (Rs. 57,000), tolls (Rs. 26,000), and the tax on professions (Rs. 12,500). The chief items in the expenditure, which amounted to Rs. 2,18,000, were water-supply and conservancy (Rs. 70,000) and medical services (Rs. 17,000). The water-works, which derive their supply from underground springs in the bed of the Vaigai river, were completed in 1894. Estimates for increasing the quantity of water available by constructing a receiving gallery across the river are under consideration. A scheme for the drainage of the central part of the city has also been drawn up.

Madura is the industrial and educational centre of the District. Its chief industry is weaving. The silk-weavers, called Patnūlkārans, are immigrants from Gujarāt and speak a dialect of Gujarātī. It is said that their forefathers were induced to settle in Madura by Tirumala Naik. They claim to be Brāhmans, and call themselves by Brāhmanical titles. The women and children are employed in the preliminary operations of preparing the thread and warp, while the men do the dyeing and the actual weaving. They make pure silk fabrics and also cloths of mixed silk and cotton. The number of looms at work is about 2,000.

The Madura Mills Company, established in 1892, employs 1,760 hands in its steam cotton-spinning mill. The daily output of yarn averages 16,000 lb. Of the raw material, five-sixths is grown in

India and one-sixth is imported from Egypt. A fine variety of yarn made here is dyed turkey-red and sold locally. The coarser counts are mainly exported to China if the rate of exchange for silver be favourable.

The two Arts colleges in the District, the Madura Native College and the American Mission College, are both at Madura. The former has 69, and the latter 27, students reading in the higher classes. The Native College took the place of a former Government college, and is now managed by a committee of native gentlemen presided over by the Collector. Its school department contains 925 pupils, and that of the Mission College 371. Other large educational institutions are the Setupati high school, now amalgamated with the Native high school, and the American Mission school. The Madura Technical Institute, maintained by the District board, gives instruction in drawing, carpentry and carving, and blacksmiths' and fitters' work, and in the manufacture of articles from aluminium and rattan. The number of pupils is 130, and the work turned out in 1903–4 was valued at Rs. 19,000. The technical schools of the District have altogether 245 pupils. A new municipal hospital is now being built. The Albert Victor Hospital belonging to the American Mission is an admirably equipped institution. The town also possesses a maternity hospital.

Madurāntakam Tāluk.—Southern *tāluk* of Chingleput District, Madras, lying between 12° 15′ and 12° 46′ N. and 79° 38′ and 80° 9′ E., on the coast of the Bay of Bengal, with an area of 696 square miles. The population in 1901 was 278,561, compared with 263,137 in 1891. It contains three towns, MADURĀNTAKAM (population, 6,266), the head-quarters, UTTARAMERŪR (10,432), and CHEYŪR (5,210); and 524 villages. The demand on account of land revenue and cesses in 1903–4 amounted to Rs. 5,39,000. The Pālār and Kiliyār rivers flow through the *tāluk*. The soil is generally a red ferruginous loam, but becomes sandy as the sea is approached. The *tāluk* is, however, more fertile than its neighbours. Its surface is generally undulating, and its northern portion is studded here and there with a few low hills, while towards the south run two long ridges, rising in places into small peaks, which stand one behind the other at distances, respectively, of 7 and 14 miles from the sea. A strip of land separated from the mainland by backwaters runs down the coast. It is called the Idaikalinādu, or 'land between backwaters,' and tradition says that it was parted from the rest of the *tāluk* by an irruption of the sea. A pious shepherd, says the story, was warned of the approaching deluge, took precautions accordingly, and was saved with his whole flock. The tract in question is covered with coco-nut palms, which yield the best nuts in this neighbourhood, largely exported to Madras.

Madurāntakam Town.—Head-quarters of the *tāluk* of the same name in Chingleput District, Madras, situated in 12° 31′ N. and 79° 53′ E., 50 miles south-west of Madras city on the southern trunk road. With its hamlet Kadapperi it contains 6,320 inhabitants (1901), almost all of whom are connected with the cultivation of the land irrigated from the great tank which takes its name from the village. A large number of the landholders are Vaishnavite Brāhmans. This tank is the only noteworthy feature in the place. It is formed by damming up a small river called the Kiliyār, which rises in the hill at Wandiwāsh, and is one of the most important irrigation works in the District. It owes its existence in its present form to Mr. Place, who was Collector at the end of the eighteenth century. He connected and strengthened the banks of two smaller tanks which he found here, and converted them into one large tank with a surplus weir at the northern end. This weir is one of the finest works of its kind in the country, and is built in the form of a waved line, the height from the crest to the bed of the river below being 30 feet. The southern portion especially is a very curious and beautiful specimen of masonry. Instead of being built in steps, the descent is formed to imitate the curve which the flood-water takes in a fresh, and huge blocks of granite have been hewn into this curve and are bound into their places with lead. An inscription on the pillar at the northern end records that the tank was completed by Mr. Place in 1798, after having been twice carried away, and gives details as to the cost, &c. As originally designed by Mr. Place, the tank was constructed to irrigate five villages, besides Madurāntakam, through the four sluices in its bank, and to supply the tank of Karunguli by a channel, about one-fourth of a mile in length, mostly cut through rock. The surplus weir was subsequently raised 2 ft. 3 in., and this channel was carried 2 miles farther on from the weir of the Karunguli tank as far as Sanūr.

Magadha.—This ancient kingdom is referred to in both the Rāmāyana and the Mahābhārata. The greater part of Magadha proper was situated in Bihār south of the Ganges, with its capital first at Rājagriha and afterwards at Pātaliputra (Patna); but it also extended into the east of what is now the United Provinces, where it marched with the kingdom of Benares. Magadha was the scene of many episodes in the life of Gautama and is important in the history of Buddhism. About the same period Mahāvīra founded the cognate sect of the Jains. At the time of Alexander's invasion, the kings of Magadha appear to have been recognized as paramount over the greater part of the United Provinces as well as over Bengal. Their dominion was still further extended by Chandragupta Maurya and his grandson, the famous Asoka. The Maurya dynasty declined

after Asoka's death, and Magadha was conquered about 150 B.C. by a king of Kalinga; but towards the end of the fourth century A.D. a new line of Gupta kings renewed the glories of Magadha, and gradually spread westward to Allahābād, Kanauj, and even to Gujarāt, while Samudra Gupta temporarily conquered part of the Deccan. When the Gupta empire broke up early in the sixth century, Magadha was subdued by the Chālukya king Kīrttivarman I, but again became a small kingdom, still ruled by an eastern branch of the Guptas. Inscriptions give the names of eleven kings, the eighth of whom was reigning in 672. The kingdom was absorbed in the dominions of the Pāl dynasty of Bengal in the ninth century. In 1197 the last of the Pāls was dethroned by Muhammad Bakhtiār Khiljī, and the kingdom of Magadha was included in the empire of the Slave kings of Delhi. Magadha formed part of the Jaunpur kingdom for a time, and its later history merges in that of Bihār. Varāha Mihira, the Sanskrit geographer of the sixth century A.D., mentions Magadha as situated in the eastern division of India between KOSALA and MITHILĀ (Tirhut). The kingdom has given its name to a tribe of Brāhmans called Māgadha or Sākaldwīp Brāhmans, and also to the Magahiyā subdivision of the low-caste Doms. Like other kingdoms east of MADHYA DESA, its inhabitants were held in low esteem, and this feeling has survived to the present day.

[Lassen, *Ind. Alt.*, vol. i, pp. 135 and 602; Pargiter, *J. A. S. B.*, 1897, p. 86; McCrindle, *Invasion of India by Alexander*, pp. 36, 56, 380, and 404–8; Fleet, *Ind. Ant.*, 1893, pp. 170, 183, and *Gupta Inscriptions*, pp. 200–20; Duff, *The Chronology of India*, passim.]

Māgadi.—Western *tāluk* of Bangalore District, Mysore, lying between 12° 50′ and 13° 12′ N. and 77° 4′ and 77° 27′ E., with an area of 359 square miles. The population rose to 76,986 in 1901 from 64,334 in 1891. The *tāluk* contains one town, Māgadi (population, 3,608), the head-quarters; and 334 villages. The land revenue demand in 1903–4 was Rs. 1,35,000. This is a hilly and jungly *tāluk*, with the Arkāvati river flowing through the south-east in a deep bed. Sāvandurga (4,024 feet) is the loftiest mountain, surrounded by deep defiles and a State forest. In the north-west a chain of tanks is formed by a stream running to the Shimsha. The soil is generally poor, a shallow red mould mixed with stones. Some tobacco is grown.

Magar Talao ('Crocodile Tank,' also called Magar Pīr, or more correctly, *Pīr Mangho*).—Tank, hot springs, and temple in the District and *tāluka* of Karāchi, Sind, Bombay, situated in 24° 58′ N. and 67° 5′ E., about 9 miles north of Karāchi city, among very barren and rocky hills. Formerly there was a swamp here, in which many

hundreds of tame crocodiles lived. This swamp has long ceased to be the home of crocodiles, which are now, to the number of about 25, confined in a small pool, surrounded by a masonry wall. They are quite different from the *ghariāl*, or long-snouted kind which abounds in the Indus. The temperature of the water of the hot springs is 133°. The springs are considered by the natives to be efficacious in the cure of every disease, and many bathe daily in the waters. The Hiranand Leper Asylum, which is intended for all those afflicted with skin disease, owes its inception to private enterprise. Picnics are frequently made here by parties from Karāchi, when a goat or other animal is bought and sacrificed for the crocodiles. At the present time, a fairly constructed road runs from Karāchi to Magar Talao, and thence westerly to the Hab river; and a rough track also leads north to Shāh Bilāwal in Las Bela. There is a *dharmsāla* at Magar Talao, as also a small bungalow, erected by a Pārsī, where visitors can put up during their stay.

Māgāthan.—Village in the Salsette *tāluka* of Thāna District, Bombay, half a mile east of the Borivli station on the Bombay, Baroda, and Central India Railway, and 22 miles from Bombay. Population (1901), 592. It is noted for the Māgāthan or Poinsar caves, including a chapel cave on the south and a monastery cave on the north. The latter, which is now roofless, included a central hall, about 25 feet square and 8 feet high, and two aisles on the east and west, with two plain pillars and two pilasters, the aisles being 25 feet long and 6 feet deep. In the back wall are two plain cells about 5 feet square and 5 feet high. The only carving is a mark like a crescent or a pair of sharp horns on the north pilaster of the east veranda. Through the wall of the monastery cave a passage leads into the chapel cave. The rock, which has worn into a rough surface like pudding-stone, has lost most of its carving. Enough remains to show that the work is late, perhaps of the sixth or seventh century. The image of Buddha can hardly be traced, but it seems to have been seated. On the wall are the remains of some figures, one being a seated Buddha. The pillars of the chapel veranda are cushion-capitalled like those of Elephanta, but are probably older. To the south are other plain caves. To the east is a rock-cut cistern. On the west bank of a double pond, about 200 yards north of the cistern, are two old Musalmān tomb-stones, rather finely carved, with hanging chains. About 300 yards to the east, on a low mound covered with grass, *karanda* bushes, and brab palms, are two Buddhist *dagobas*. They are of dressed trap, about 2 feet 3 inches square at the foot, and rise, with moulding and flat bands, in a cone about 3 feet 4 inches long, about 6 feet round at the middle, and 5 feet near the top. On

the top are traces of a broken *tee*. There are numerous other remains of interest.

[See *Bombay Gazetteer*, vol. xiv, pp. 216–8.]

Maghar.—Village in the Khalīlābād *tahsīl* of Bastī District, United Provinces, situated in 26° 45′ N. and 83° 8′ E., on the Bengal and North-Western Railway and on the road from Gorakhpur to Fyzābād. Population (1901), 2,633. The village is celebrated as containing the tomb of Kabīr, the religious reformer, who is acknowledged as a prophet or saint by both Muhammadans and Hindus. The tomb is said to have been built about 1450; but the original building was replaced or restored by Nawāb Fidāe Khān in Akbar's reign. Maghar was occupied from the close of the seventeenth century by a Muhammadan garrison, and under the Oudh government was an important military post up to the cession in 1801.

Maghiāna. — Town in Jhang District, Punjab. *See* JHANG-MAGHIĀNA.

Māgori (*Magodi*).—Petty State in MAHĪ KĀNTHA, Bombay.

Magrā.—Village in the head-quarters subdivision of Hooghly District, Bengal, situated in 22° 59′ N. and 88° 22′ E., on the Magrā Khāl. Population (1901), 96. Magrā is a station on the East Indian Railway and the terminus of the Magrā-Tārakeswar Light Railway; it is an important mart with an extensive trade in grain and tobacco. Large quantities of sand from the bed of the old Saraswatī river are exported to Calcutta and elsewhere for building purposes.

Magrā Hāt.—Village in the Diamond Harbour subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 15′ N. and 88° 23′ E. Population (1901), 435. Owing to its position at the confluence of important waterways and upon the Diamond Harbour branch of the Eastern Bengal State Railway, Magrā Hāt is the largest rice mart in the south of the District, and agencies have been opened for the purchase of rice and the sale of kerosene oil. The Church Missionary Society has a church here.

Maguna.—Petty State in MAHĪ KĀNTHA, Bombay.

Māgura Subdivision.—North-eastern subdivision of Jessore District, Bengal, lying between 23° 16′ and 23° 41′ N. and 89° 25′ and 89° 41′ E., with an area of 425 square miles. Its population declined from 303,281 in 1891 to 277,381 in 1901, the density being 653 persons per square mile. It contains 934 villages, including MĀGURA, its head-quarters; but no town. The subdivision is a deltaic tract, the formation of which is very nearly completed except along its western border, which is still liable to inundation from the floods of the Madhumatī. It contains some very unhealthy tracts, and it is said to have been the focus of the 'Burdwān fever.' The principal marts are at Māgura and MUHAMMADPUR.

Māgura Village.—Head-quarters of the subdivision of the same name in Jessore District, Bengal, situated in 23° 29′ N. and 89° 26′ E., on the Nabagangā river, where the Muchikhāli Khāl brings down to it the waters of the Kumār. Population (1901), 1,148. It has a brisk trade in sugar and rice, and a number of sugar refineries. Large numbers of reed mats are made here, and oil is manufactured from mustard seed. Māgura contains the usual public offices; the sub-jail has accommodation for 63 prisoners. It is protected from inundation by the Nabagangā embankment.

Magwe District.—A dry zone District in the Minbu Division of Upper Burma, lying between 19° 39′ and 20° 46′ N. and 94° 48′ and 95° 51′ E., with an area of 2,913 square miles. It is bounded on the north by Myingyan District; on the east by Meiktila and Yamethin Districts; on the south by the Sinbaungwe township of Thayetmyo; and on the west by the Irrawaddy river, which divides it from the District of Minbu. The country is rolling in formation. Beginning from the alluvial belt bordering the Irrawaddy, it rises into a rugged and almost barren strip of land cut up by ravines, which is succeeded farther east by a high-lying gently undulating plain, about 20 miles broad, which stretches from north to south through the District. Beyond this is a second belt of sterile upland, which culminates in the Pyinkadaw hills in the north; and beyond this again lies the low fertile plain forming the basin of the Yin stream, bordered on the east by the Pegu Yoma. The scenery is most picturesque in the region of the Yoma, though the *yas* on the slopes of the central plain and some of the stretches along the Yin are not without a beauty of their own. Except in the rains, however, the greater part of the District strikes the observer as being desolate and arid.

Physical aspects.

The Irrawaddy, whose waters skirt the District on the west, is its chief waterway and its only navigable one. The Pin, rising on Popa, in Myingyan, flows in a broad channel along the northern boundary of the District, joining the Irrawaddy above the village of Yenangyaung. Three-quarters of the District, however—in fact, all but the north-western corner—lie in the basin of the Yin, which rises near Yindaw in Yamethin District and runs through the 'tail' of the Pegu Yoma into the north-east of Magwe, turning south as it leaves the hills. About 60 miles below this point it receives the waters of the Sadon, Yabe, and Taungu, which drain the south-eastern quarter of the District. Here the river turns westwards to join the Irrawaddy, into which it empties itself after a course of about 120 miles, 8 miles below Magwe. The Taungdwingyi plain, watered by the three affluents of the Yin, extends for 45 miles from north to south and is extremely fertile. The Pin and Yin are subject to sudden and severe floods and

abound in quicksands, and with the Yabe and Sadon are the only perennial streams, besides the Irrawaddy, in the District. The rest all dry up in the hot season. There are no lakes of any size; but a chain of small swamps, fed by the overflow of the Irrawaddy, extends through a portion of the Myingun township.

The geological features of the District, especially of the neighbourhood of Yenangyaung, have been described in great detail[1]. The post-pliocene beds may be divided into two portions: lower silts, which occur in hollows lying unconformably on the pliocene strata; and plateau gravels, which are found at higher levels, and consist of rolled pebbles of white quartz, silicified wood, and other matter. The underlying Tertiary rocks have been divided into pliocene (Irrawaddy series), soft friable sandstones with beds of ferruginous conglomerate containing mammalian bones, and miocene (Pegu series) in two stages—the upper, composed of olive clays and sandstones with gypsum, called the Yenangyaung stage; the lower, consisting of greyish clays and sandstones, known as the Prome stage. As in Minbu District, the miocene beds are brought up to the surface by an anticlinal fold, the denudation of which has exposed them over an elliptical area at Yenangyaung, which is surrounded on all sides by the Upper Tertiary (pliocene) sandstones. The Yenangyaung oil is confined to the sandy beds of the lower miocene (or Prome) stage, and occurs at six horizons, the two lowest of which have so far yielded only traces of oil. The productive area is confined to the crest of the anticlinal, and measured little more than half a square mile in 1895. The exploitation of this oil-field is described under Minerals.

The main botanical data for the District are given below under Forests. Except near the Irrawaddy and on the eastern border, the flora is of the dry type described in the MINBU DISTRICT article.

Wild elephants, tigers, bison, and *hsaing* or *tsine* (*Bos sondaicus*) are met with in the Yoma, while the lower spurs of the range abound with barking-deer, leopards, and wild hog. Hog deer and peafowl are found in the plains of Taungdwingyi, and the *thamin* or brow-antlered deer is found wherever cultivation is bordered by *indaing* jungle.

The climate is hot and dry, and varies but little throughout the District, the mean temperature, based on the figures for eight years, being 76°. The highest reading recorded during this period was 109° in the month of May, and the lowest 42° in January. The District, as a whole, is healthy, and does not suffer much from cholera and small-pox; but the Taungdwingyi subdivision is malarious in November, December, and January, owing to the proximity of the Yoma.

The annual rainfall, based on the readings of four stations for eight years, averages 29 inches, but the amount received ranges from

[1] F. Noetling, *Memoirs, Geol. Survey of India*, vol. xxvii, pt. ii, p. 49.

23 inches at Yenangyaung to 36 inches at Taungdwingyi. The rainfall not only differs considerably in different parts, but varies a good deal from year to year in the same place.

History.

Little is known of the early history of the District. Tradition has it that Magwe town was founded in 1158 and Myingun about a century earlier. When the Myingun prince rebelled against Mindon Min in 1866, his followers in the District raised the standard of revolt and joined him, but the rising was quickly suppressed. In 1885, during the occupation of Upper Burma, a column was sent towards Taungdwingyi, then the nominal head-quarters of the Myede subdivision of Thayetmyo District. On November 30 it encountered the enemy at Thitkokkwin, and subsequently inflicted a decisive defeat on them at Nyadaw. On December 12 Taungdwingyi was occupied without further opposition, and the civil administration was organized under an Assistant Commissioner. Later in the year the Pin township was added from Pagan, and Taungdwingyi was constituted a District. In 1888 the Yenangyaung township was added from Minbu, and the head-quarters were removed to Magwe, which gave the new District its name.

The severe loss inflicted on the insurgents in 1885 kept the District quiet for a time, but in the course of a year or two there was a recrudescence of dacoity, which had been put down by April, 1888. In August of that year, however, a pretender, styling himself the Shwekinyo prince, assisted by a leader named Nga Le and other noted dacoits, concerted a rising. The rebels received encouragement from the result of an encounter with the military police, whom they repulsed with loss. This success was followed by others, and it was not till May, 1889, that Nga Le was killed and his following dispersed. Meanwhile constant dacoities took place in the Taungdwingyi subdivision. In April, 1889, a gang of more than 100 dacoits attacked and burnt the police outpost at Myothit. In May a large band under an outlaw called Buddha Yaza assembled in Pin township, bodies from all parts joined it, and much mischief was done before the rebels were accounted for. On June 1 Mr. Dyson, Assistant Commissioner, was killed while attacking with police a small party under a leader named Tha Ya, but the latter was himself killed soon after and his followers surrendered. An offer of indemnity was made later in the year to all dacoits not actually concerned in murder, excepting one or two specified leaders, and more than 150 men laid down their arms; but the disturbances did not end here. At the close of 1889 Magwe was the only District in Upper Burma where dacoities on a large scale were of daily occurrence; and it was not till the Magwe, Pyinmanā, and Yamethin police, acting under the general control of the Deputy-Commissioner of Pyinmanā, started a systematic campaign against

the refugees in the Pegu Yoma, that the dacoits were either killed, captured, or surrendered. The gangs in the northern portion of the District were disposed of in due course by the Deputy-Commissioner, and since then Magwe has been undisturbed.

The Myathalun at Magwe and the Shweyaungdaw and Shwe-indaung in Taungdwingyi are the only noteworthy pagodas. Each of these used to have its annual festival in former times; but now there is only one, at the Myathalun, which has of late been revived, and is held every October. Near Kokkogwa in the Satthwa township are the remains of an ancient capital, Paikthado or Peikthano. The town must have had its day of importance, but little is now known about it.

Population.

The population was 219,190 in 1891 and 246,708 in 1901. Its distribution in the latter year is shown in the following table:—

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Magwe	588	1	155	53,095	90	+ 26	13,784
Myingun	447	...	101	26,029	58	+ 7	7,463
Satthwa	469	1	223	53,424	114	...	13,772
Myothit	403	...	125	42,925	107	+ 26	10,420
Natmauk	887	...	181	53,262	60	+ 25	13,122
Yenangyaung	119	...	42	17,973	151	− 22	3,136
District total	2,913	2	827	246,708	85	+ 12	61,697

MAGWE and TAUNGDWINGYI are the chief towns. The density of population is considerably above the average of the Minbu Division. There has been a certain amount of immigration from the neighbouring District of Myingyan; but although the population increased by 27,500 persons between 1891 and 1901, the total number of persons born in other parts of Burma and resident in the District in 1901 was only 7,700, and most of the increase may be looked upon as due to natural causes. The extension of the oil industry is probably the reason of the decrease in the agricultural population of the Yenangyaung township. Altogether 99 per cent. of the people are Buddhists, and only 1½ per cent. speak languages other than Burmese. Of Christians there are 151, of whom 73 are natives.

Burmans form over 98 per cent. of the total population. Immigrants from India proper numbered 1,209 in 1901, out of an Indian population of 1,595, the total being equally divided between Musalmāns and Hindus. They are settled mainly in the two towns of the District and in the Yenangyaung township. There are just under 2,000 Chins, confined to the Satthwa township in the south-east of

the District. The population directly dependent on agriculture in 1901 was nearly 79 per cent. of the total; and half of them were *taungya* (shifting) cultivators.

Agriculture.

The Satthwa and Myothit townships, fringed on the east by the slopes of the Yoma, are watered by several streams, and in them the land is largely irrigated. The whole tract is studded with villages embowered in trees; the population here, too, is denser than in other parts, small gardens are seen in every village, and the people appear to be well-to-do. In the other four townships, forming the dry portion of the District, the villages are far apart, gardens and shade-giving trees are rarely met with, and, except in the oil area of Yenangyaung, the inhabitants are not prosperous.

The irrigated tracts are characterized by loamy soils impregnated with silt, varying in quality according to the proportions of clay and sand and averaging 3 feet in depth. In the dry tracts a red earth predominates, containing loam and sand. The District exhibits also several kinds of extremely sandy soils, and the well-known black cotton soil. In the case of the last, the depth is generally 2 to 2½ feet; but in the *kyauktaw*, or ravine-intersected portions of the District, the land is gravelly and very poor, and the soil barely 8 inches deep.

Agriculture is entirely dependent on the rainfall, even in the irrigated tracts; and, as the rain is scanty, it has been calculated that one very poor year almost reaching famine point, as well as one bumper year, may be expected in every five or six. The rains begin about the middle or end of May, and end late in October, the wettest month being August. The cultivation consists of both 'wet' and 'dry crops,' and it frequently happens that a rainfall which suits one is detrimental to the other. Sesamum, which is the principal crop in the dry tracts, is generally sown after the first downpour in May, and thrives best in a season of moderate rainfall, with short intervals of bright sunny days. Maize requires a rainfall similar to sesamum; it is sown about the same time, generally mixed with beans and vegetables in the *yas* around villages. *Jowār* is also sown as a first crop in May or June, and little rain is needed till the ears begin to fill in October. It is generally, however, cultivated as a fodder crop, when it follows sesamum. Ground-nut can stand drought even better than sesamum, and is now extensively grown in the *indaing* tracts. Rice cultivation is carried on in the same way as elsewhere in the dry zone, mainly in the rich Taungdwingyi plain in the Satthwa and Myothit townships. *Mogaung* rice, which, as its name implies, depends entirely on the rainfall, is found in small patches wherever it is possible to cultivate it.

Being in the dry zone, the cultivated area varies considerably from

year to year. For 1903–4 the main statistics are given below, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Magwe	588	174	2	899
Myingun	447	101	1	
Satthwa	469	127	69	
Myothit	403	107	19	
Natmauk	887	167	3	
Yenangyaung	119	30	...	
Total	2,913	706	94	899

The staple crop is sesamum, covering about 305 square miles, about a third of which is found in the Magwe township. Next in order of importance is *jowār*, occupying 208 square miles, about three-fourths of the whole being grown in the Magwe and Natmauk townships. The area under rice is 172 square miles, of which 103 square miles are in the Satthwa township and 37 square miles in Myothit, both in the great Satthwa plain. A little *mayin* (hot-season rice) is grown in the riverside townships. Maize covers a considerable area; about 28 square miles are under various kinds of pulse, and about 4,300 acres under cotton, while tobacco occupies slightly more than 2,000 acres, for the most part in the river-washed townships of Magwe and Myingun. The toddy-palm is cultivated, mostly in the Yenangyaung township.

Expansion of cultivation has taken place of late and will probably continue; but the increase is likely to be confined almost entirely to the country skirting the forest Reserves, for the soil of the arable waste in the dry tract is poor, the rainfall scanty, and settlers are not attracted thither. There has been no change in the description of produce raised since annexation; but the area under ground-nut has largely extended, and seed from Madras has been introduced of late years, which is much appreciated. Havana tobacco seed has not been tried till lately, and it has not done well so far.

The rearing of goats for milk is common in the *ya* (upland) villages. Ponies are of the usual kind as a rule, but some good animals of a fair height are occasionally met with, and fetch a good price. The military police get most of their remounts from Salin and Pakokku. The breed of cattle in the District is of the ordinary type, and stock-raising is confined principally to the *ya* tracts. There are no 'notified' grazing grounds, and none are required, as plenty of fodder is always available.

Irrigation is carried out largely by means of roughly constructed timber-weirs, called *thitse*, erected by the people across the many small streams which take their rise in the Yoma, and flow through the Myothit and Satthwa townships. In the Yin stream sand-weirs,

called *these*, are thrown up to divert the water. The only irrigation works maintained by Government are the Segyi and Taungtha tanks, situated near Shwebandaw in the Natmauk township, which command an area of 1,000 acres. These tanks were in disrepair when the country was annexed, but were restored by the Public Works department as a famine relief work in 1891–2, and now contain water all the year round. The Kandawgyi tank in the Satthwa township, a private work, commands an area of 1,300 acres. There are several other small tanks in different parts of the District, but all wholly depend for their contents on the rainfall. The irrigated area classed as secure is 40 per cent. of the irrigable area of the District, and the total area irrigated in 1903–4 was 94 square miles, 70 square miles of which were in the Satthwa township and 19 in Myothit. No important inland fisheries exist, but the shifting pools which are found after the Irrawaddy floods subside are worked annually.

Forests.

The forest Reserves of Magwe form a compact block in the east of the District, extending from the southern boundary of Satthwa to the northern boundary of Myothit, including the forest-clad slopes of the Pegu Yoma, the crest of which range forms the eastern, while the limits of the cultivated area brought under settlement forms the western boundary of the 'reserved' tract. The total area is 399 square miles, including the Sun Reserve (92 square miles); the Sadon (92 square miles); the Ngamin (79 square miles); the Yinmale (16 square miles); the Kinmundaung (51 square miles); the Kyaukmidaung (27 square miles); and the Yabe (42 square miles). *Padauk* (*Pterocarpus indicus*) and teak are found in all the Reserves, but *padauk* is worked only for local use. Cutch occurs in the three northern Reserves, but has been worked out. *Thitya* (*Shorea obtusa*) and *ingyin* (*Pentacme siamensis*) are common; and *pyingado* (*Xylia dolabriformis*) is plentiful, but its timber cannot be profitably put on the market owing to the distance it would have to be carted. *Kusan* (*Hymenodictyon thyrsiflorum*), *taukkyan* (*Terminalia tomentosa*), and *in* (*Dipterocarpus tuberculatus*) are the only other species that are worked for timber. Bamboos are not found in any quantity in other portions of the District, but a considerable number are cut yearly in all the Reserves. Black varnish is extracted in a few localities from the *thitsī* tree (*Melanorrhoea usitata*), which grows in *indaing* jungle; and *shaw* fibre is obtainable from two species of *Sterculia* which are common in the Reserves. The mulberry is cultivated on the alluvial banks of some of the small streams by Yabeins, who rear silkworms. The only teak plantation, a very poor one of 60 acres, was planted in 1897 at Thakwagon in the Ngamin Reserve. In 1903, 109 acres in the Sadon Reserve were cleared by *taungya* cultivators and sown with teak. Besides the Reserves, there is an area of

500 square miles of 'unclassed' forest. Sanction has been accorded to a five years' programme of fire protection, and by 1909 it is expected that the whole of the Reserves will be protected. In 1903-4 the forest receipts amounted to Rs. 85,000. A survey has recently been completed, and it is hoped that Magwe will show a steadily growing surplus in the future.

Minerals.

Of the minerals found, petroleum is by far the most important. It is obtained in large quantities at Yenangyaung in the north-west corner of the District, and probably exists in paying quantities in other parts where the geological formation of the soil is similar. The Burma Oil Company is the only European company in this field. Drilling operations were first started in 1888 on the principle known as the American cable system, and the work has continued up to date. The engineers and drillers are mostly Americans, and about 400 natives are employed at wages ranging from Rs. 15 to Rs. 45 a month. The oil is shipped in bulk, in special flats built for the purpose, by the Irrawaddy Flotilla Company to Rangoon, where it is refined and, with its products, either exported to Europe, India, and the Straits Settlements, or sold for use in the Province. The Burma Oil Company has surveyed the country from Rangoon to Yenangyaung, with a view to the laying of a pipe-line which will take the oil direct overland to Rangoon. The oil is employed in its crude state as fuel by the Irrawaddy Flotilla Company, and is bought up largely at Yenangyaung for use all over Burma as an illuminant, or as a varnish for preserving woodwork or matting. Natural gas, obtained from the borings, furnishes the company with lighting and fuel for their furnaces. The Burmese wells, which are worked on the rope-and-pulley principle, give work to about 300 or 400 Burman coolies, who earn from 4 annas to 8 annas a day. Of recent years the air-pump and diver's helmet have been introduced, and a small mirror placed over each well to reflect the light. The depths of these wells vary from 135 to 400 feet, the majority being 250 to 300 feet deep. The native miners or *twinzas* who work their own wells sell most of their oil to the company. The royalty at present paid to Government by the company is 8 annas per 365 lb. The amount realized in 1900-1 was 3·3 lakhs, and the yield of oil was 27 million gallons. In 1903 the royalty rose to 6·7 lakhs and the output to 57 million gallons.

Salt, limestone, and pottery clay are worked in a small way in a few places in the District. Sandstone is obtainable all over the hilly tracts, but is not extracted for trade purposes.

The District, apart from the oil-field, being almost purely agricultural, few regular industries are carried on. Sericulture is practised to a small extent in eleven villages bordering the forest Reserves

in the Satthwa townships, but the industry is languishing. A little silk-weaving is done, and cotton cloths for home use are still largely woven all over the District, every village having a few looms. A handicraft peculiar to the District is practised in the Satthwa township near the Yoma. This is the manufacture of household dishes, such as platters, trays, bowls, and the like, which are turned out of wood and lacquered. The price of a plain bowl about a foot in diameter is from Rs. 2 to Rs. 3. Another industry, which has sprung up since the annexation in Taungdwingyi, is the manufacture of cart-wheels after the European fashion. The wheels are made of teak or *kokko* wood (*Albizzia Lebbek*); they sell at Rs. 27 the pair, and are now in general use throughout the District.

Trade and communications.

The chief trading centres are Magwe, Yenangyaung, Myingun, Migyaungye, and Minywa, all situated on the Irrawaddy, whence the whole of the import and export trade of the District is conducted. Taungdwingyi, Myothit, and Natmauk, lying inland, are distributing centres. Natmauk also receives goods carted over from Pyawbwe on the railway in Yamethin District. Rice from the southern end of the Taungdwingyi plain is sent to Sinbaungwe in Thayetmyo District. There are eight bazars, situated at Magwe, Yenangyaung, Myingun, Natmauk, Myothit, Taungdwingyi, Satthwa, and Kokkogwa. Goods are imported and exported by steamer and country boat, all internal trade being carried on by carts. By far the most important exports are petroleum and sesamum oil, others being teak, paddy, sesamum seed, jaggery, hides and horns, ground-nuts, and other vegetable products. Paddy and maize are regularly exported to Kyaukpadaung from Taungdwingyi, and in favourable years also to Minhla, Sinbaungwe, and Yamethin. *Ngapi*, salt, salted fish, rice, pickled tea, coco-nut oil, betel-nuts, timber, and iron are the main imports from Lower Burma. Piece-goods, woollen fabrics, cotton twist, hardware, and manufactured articles of all sorts are imported from Rangoon. Besides a good deal of local traffic in cattle, a large number of animals are brought up yearly by men in touch with dealers in Lower Burma, who go round the rural tracts and when they have collected a sufficient number of beasts drive them to Allanmyo and Prome or to Pyawbwe, whence they rail them to Rangoon.

No railway has been made in the District. The Irrawaddy is the only waterway; and the Irrawaddy Flotilla Company's mail steamers pass up and down the river twice weekly, touching at Yenangyaung but not at Magwe, which is cut off from the channel in the dry season by a vast sandbank. A steam ferry plies between Thayetmyo and Minbu, calling at all large villages on either bank, and another ferry launch runs between Minbu and Sinbyugyun in the north of Minbu

District, calling at Magwe and the chief villages. A small ferry launch also makes frequent trips daily between Minbu and Magwe, which lie opposite each other on the Irrawaddy. There are 21 miles of metalled and 158 miles of unmetalled roads, all of which are maintained by the Public Works department, and are for the most part bridged, drained, and embanked. They lie, however, mainly in the dry tracts, where traffic is impeded by the sand in the dry season and by the rains in the wet. The dry tracts possess several good country cart-tracks open all the year round, while those in the rice area are closed to cart traffic in the rains. The main roads are: Natmauk to Magwe, 36 miles; Magwe to Mingin, 3 miles; Magwe to Thitagauk, 26¼ miles; Natmauk to Satthwa through Myothit and Taungdwingyi, 37 miles; Taungdwingyi to Migyaungye, 33 miles; Myingun to Sainggya, 9 miles; Taungdwingyi to Ngamin, 6½ miles; Natmauk to Shwebandaw, 23 miles.

Famine.

With a precarious rainfall, the District is always liable to partial scarcity. The *Mahāthayawgyi* or 'great famine,' the only calamity of this nature that lives in the memory of the people, is said to have occurred about 1824–5, the year of the first Burmese War. While it was raging the *indaing* tracts were deserted and lapsed into jungle, and a number of people died of starvation. There was also great distress in 1852 and 1853, during the second Burmese War; and the situation was rendered all the more acute by the fact that at the critical time the Burmese troops passed through the District, devastating the country as they went. The year 1864 was another year of great scarcity, but fortunately there were no deaths from its effects. This last famine was known in Natmauk as the *Chaukpyithayaw*, because paddy sold at 6 *pyi* the rupee[1], or nearly three times the ordinary rate. Two years later, during the Myingun prince's rebellion, another year of scarcity occurred. The worst year since annexation is said by the people to have been 1891–2. The rainfall during that year was not marked by any insufficiency, but it fell at fitful intervals, and on all sides the crops withered. Relief works were started in November on the Taungtha and Segyi tanks in the Natmauk township, where the distress was greatest, and a sum of Rs. 12,900 was spent in affording assistance. The efforts made were such that not a single death occurred from starvation, but a larger number of families than usual emigrated to Lower Burma. The year 1896–7 was again a disastrous one; the rainfall was very short and the two previous years had also been unfavourable. The area most affected was the same as in 1892. As a relief work, a road from Natmauk to Shwebandaw was constructed, agricultural advances were made, and the *thathameda* rates were

[1] A *pyi* is one-sixteenth of an ordinary basket.

reduced. No lives were lost, but emigration to Lower Burma was again notably large.

Administration.

For administrative purposes the District is divided into three subdivisions: Magwe, comprising the MAGWE and MYINGUN townships; Taungdwingyi, comprising the NATMAUK, MYOTHIT, and SATTHWA townships; and the subdivision and township of YENANGYAUNG. The Magwe subdivision has no subdivisional officer, but is under the direct control of the Deputy-Commissioner. The other subdivisions and townships are under the usual executive officers. The total number of village headmen is 825. The District forms a subdivision of the Thayetmyo Public Works division. The Deputy-Conservator of Forests has his head-quarters in Minbu District.

Each subdivisional or township officer is subdivisional or township magistrate or judge in his charge; the subdivisional officer, Taungdwingyi, is also additional judge of the District court. The treasury officer at Magwe is an additional judge of the Magwe township court; and at Taungdwingyi there is an additional judge of the Myothit and Satthwa township courts. Except that cattle-theft is exceptionally rife, the crime of the District is of the ordinary type.

Under Burmese rule the main source of revenue was *thathameda*, assessed by *thamadis* (specially selected village elders) on the same principles as at the present day. In addition, a *kyun* or island cultivation tax was assessed by the revenue court at Mandalay at so much per island. Ferries and fisheries were leased out by the government, and customs were levied on goods carried into and out of the Satthwa township, and on boats as well as on goods landed on the banks of the Irrawaddy. A comparatively small area paid land revenue as state land at the rate of one quarter of the gross produce, and this is the only tract in which land revenue is at present raised in the District. A survey has, however, now been completed, and settlement rates have been proposed, which, it is calculated, should bring about an enhancement of 30 per cent. According to the rates suggested, rice land will pay from R. 1 to Rs. 4-8 per acre, gardens from Rs. 2 to Rs. 15, and the rates in the dry tract will vary from 6 annas to Rs. 2-12 per acre. The average area of a holding in Magwe is 12 acres of rice land and 18 acres in the *ya*, or upland, tracts. A form of tenure peculiar to the District and its immediate neighbourhood is that known as *athi*, the principal features of which are that the owner must be a resident of the circle in which the land he holds is situated, and must not own more land than he can cultivate himself. The *thugyi* can allot, increase, or curtail his holding, and the land is inalienable (so long as the necessary conditions are fulfilled), though heritable.

The following table shows the growth of the revenue since 1890–1, in thousands of rupees:—

	1890–1.	1900–1.	1903–4.
Land revenue . .	2	27	56
Total revenue . .	4,52	8,35	10,00

A special source of revenue is the royalty on the output from the Yenangyaung oil-wells, amounting to nearly $5\frac{3}{4}$ lakhs in 1903–4. Next to this in importance is *thathameda*, which rose from Rs. 3,48,900 in 1890–1 to Rs. 4,64,000 in 1900–1, but fell again to Rs. 4,51,000 in 1903–4. At present the land revenue is small; but when acre rates have been introduced, the *thathameda* will be diminished by $1\frac{1}{2}$ lakhs and the land revenue will be proportionately increased.

There is only one municipality, that of TAUNGDWINGYI. In 1901 Magwe town was declared a 'notified area' and a town committee was formed. The District fund administered by the Deputy-Commissioner, which derives its revenue from various local sources, had in 1903–4 an income of Rs. 16,500, and the chief item of expenditure was Rs. 5,000 on public works.

Under the District Superintendent of police are an Assistant Superintendent, 3 inspectors, 9 head constables, 25 sergeants, and 291 constables, of whom 32 are mounted. They are distributed in 13 police stations and 6 outposts. Magwe is the head-quarters of a military police battalion, which garrisons Taungdwingyi, and has stations in Minbu, Thayetmyo, and Pakokku Districts. The strength is one commandant, 3 assistant commandants, 27 native officers, and 1,073 rank and file.

There are two jails: one at Magwe, with accommodation for 200 prisoners, and the other at Taungdwingyi, with accommodation for 89. The industries carried on are carpentry, gardening, stone-breaking, and (at Magwe) wheat-grinding for the military police.

The standard of literacy in Magwe is high. Though the proportion of males able to read and write in 1901 was not as large as in the neighbouring District of Minbu, it only fell below that of Minbu and two other Districts. For both sexes together the proportion was 25 per cent. (50 males and 1·6 females). The number of pupils was 2,277 in 1891, and 9,233 in 1901. In 1903–4, 7 secondary, 167 primary, and 430 elementary (private) schools had a total attendance of 8,919 pupils (including 341 girls). The expenditure on education amounted to Rs. 6,300, all derived from Provincial funds.

There are 3 civil hospitals, with accommodation for 59 in-patients. In 1903 the number of cases treated was 23,180, of whom 653 were

in-patients, and 535 operations were performed. Towards the combined income of Rs. 11,300 in 1903, municipal funds contributed Rs. 3,500, Provincial funds Rs. 6,900, and subscriptions Rs. 850.

Vaccination is compulsory only within the limits of the Taungdwingyi municipality. In 1903–4 the number of persons successfully vaccinated was 10,154, representing 41 per 1,000 of population.

Magwe Subdivision.—Western subdivision of Magwe District, Upper Burma, comprising the MAGWE and MYINGUN townships.

Magwe Township.—Western township of Magwe District, Upper Burma, lying along the Irrawaddy, between 20° 4′ and 20° 31′ N. and 94° 52′ and 95° 18′ E., with an area of 588 square miles. It consists of an ill-watered sandy tract, on which *jowār* and sesamum are the chief crops. The population was 42,001 in 1891, and 53,095 in 1901, distributed in one town, MAGWE (population, 6,232), the head-quarters, and 155 villages. In 1903–4 the area cultivated was 174 square miles, and the land revenue and *thathameda* amounted to Rs. 1,38,000.

Magwe Town.—Head-quarters of the District and township of the same name in Upper Burma, situated in 20° 9′ N. and 94° 55′ E.[1] Population (1901), 6,232. It consists of a group of villages, collected round the civil station on the eastern bank of the Irrawaddy, the main feature, as seen from the river, being the Myathalun pagoda built on a slight eminence. The town has one main street running parallel with the bank, with many minor thoroughfares behind; and the surrounding country is dry, open, and rolling, divided into fields by hedges. River steamers are prevented by the formation of large sandbanks from coming alongside at the town, and have to stop at Mingin, about 3 miles lower down. The town is said to have been founded in the twelfth century, but has no history. The civil station contains the usual offices, a jail, and barracks for the civil and military police. The affairs of Magwe are administered by a town committee of five members, constituted in 1901. The fund controlled by this committee had, in 1903–4, an income of Rs. 11,500 and an expenditure of Rs. 10,400. The civil hospital has 22 beds, and is supported entirely by Provincial funds and private subscriptions.

Mahābaleshwar (or Malcolmpeth).—Principal sanitarium of the Bombay Presidency, situated in 17° 56′ N. and 73° 40′ E., in the Jāvli *tāluka* of Sātāra District. Mahābaleshwar occupies the prolonged, and in places almost level, summit of a range of the Western Ghāts, from which it takes its name, with a general elevation of 4,500 feet above sea-level, rising at points to 4,700 feet. It is reached from Bombay by the Great Indian Peninsula Railway to Poona (119 miles), and thence by the Southern Mahratta Railway to Wathār station, from which it is 39 miles

[1] The transfer of the head-quarters of the Minbu Division from Minbu to Magwe has been sanctioned, and will probably take place shortly.

distant. An alternative but little used route conveys travellers by steamboats from Bombay to Dāsgaon, near the mouth of the Sāvitrī river, from which a fine road leads (35 miles) across the intermediate plain and up the *ghāt* to Mahābaleshwar. Population (1901), 5,299, excluding 438 in the village of Mahābaleshwar, 3 miles from the station, which is officially known as Malcolmpeth.

Mahābaleshwar combines all the conditions requisite for a first-class sanitarium: easy access for invalids from the great centres of Bombay and Poona, ample level space for carriage exercise at the top of the hill, an excellent water-supply, picturesque scenery, and proximity to the fresh sea-breeze. It was established in 1828 by Sir John Malcolm, Governor of Bombay, who obtained the site from the Rājā of Sātāra in exchange for another patch of territory. The superior elevation of Mahābaleshwar (4,500 feet) renders it much cooler than the rival sanitarium of Mātherān in Kolāba District (2,460 feet), but its heavy rainfall makes it uninhabitable during the rainy season. The monsoon strikes this outlying range of the Ghāts with its full force, and deposits on their slope the main portion of its aqueous burden.

Mahābaleshwar forms the retreat during spring and autumn of the Governor of Bombay and the chief officials of his Government. It is also a popular resort for visitors from Bombay and Poona and the surrounding Districts. The favourite season is from March to June, the object being to escape from the intense heat of the plains. But this is not the time of year when Mahābaleshwar is most beautiful, as the streams and waterfalls are dry, the verdure parched, and the magnificent view obstructed by haze and glare. As soon as the first burst of the summer monsoon occurs, about June, the visitors, residents, and shopkeepers leave the station *en masse* and only a few of the poor classes remain. On the cessation of the monsoon, in October, visitors return to Mahābaleshwar, which is then seen at its best. Beautiful ferns of many varieties are in full leaf, and many spots are completely carpeted with wild flowers, moss, and grasses. The streams are full, the Venna Falls forming an imposing cascade, while the faces of the cliffs are lighted up with innumerable silver rills and dazzling sprays. Except during the south-west monsoon, Mahābaleshwar is at all times most attractive, one of its principal charms being the excellent drives and walks in all directions. The principal points are: Arthur's Seat (4,421 feet), Elphinstone (4,184), Sidney or Lodwick (4,067), Bombay, Carnac, Falkland, Sassoon, and Babington (4,245) on the Konkan face, and Kate's Point on the Deccan side. The places in the neighbourhood of the hill to which excursions are occasionally made are Pratāpgarh, Makarandgarh (the saddle-back hill), Kamalgarh, the Robbers' Caves, and the source of the Kistna. A temple of Mahābaleshwar, which gives its name to the station, is situated 4,385 feet

above sea-level in a small village 3 miles north of the bazar. The village is regarded by Hindus as a holy place or *tīrth*. Close by is another temple of Krishna Bai, where the river Kistna takes its source.

Mahābaleshwar proper is a municipality under the administrative charge of a Superintendent, who is usually a member of the Indian Medical Service. From the success attending the cultivation of cinchona on the Nīlgiris and in some of the hill stations in Bengal, the Government of India in 1864 established a garden, consisting of about 95 acres, on the eastern side of the hill; but this experimental cultivation having proved a complete failure, after an expenditure of Rs. 64,000, the land, with a bungalow erected thereon, was in 1876 handed over to the Forest department. Owing to the temperate climate, many varieties of flowers, fruit, and vegetables common in Europe can be grown, among which may be noted excellent strawberries. Mahābaleshwar has the usual public buildings of a first-class sanitarium—church, clubs, library, hotels, cemetery, telegraph and post office, &c. The bazar or general market occupies a central position in the station, and supplies of every description can be obtained. The Frere Hall, a handsome building constructed in 1864, contains a large reading-room with a well-assorted library. There are several hotels and numerous bungalows, occupied by both Europeans and natives. The population varies according to the time of the year; but the permanent population of the 65 villages comprising Malcolmpeth and also Mahābaleshwar was returned in March, 1901, at 5,737. No returns are available showing the population at the height of the season. The civil hospital is in charge of a Civil Surgeon, who also acts as Superintendent of the station and Assistant to the Collector at Sātāra. The municipality, established in 1867, had an income during the decade ending 1901 averaging Rs. 19,000. In 1903–4 the income was Rs. 22,000, derived chiefly from house rent (Rs. 6,600), octroi (Rs. 3,000), tax on animals and vehicles (Rs. 2,100), and a conservancy tax (Rs. 2,000).

The average annual mean temperature of Mahābaleshwar Hill is 67°. In November, December, and January, the coldest months, the temperature averages 63°, rising to a mean of 67° in February, when the cold season ends. The hottest time of the year is from about the middle of March to the middle of April, when during the day the temperature rises to a little over 90°. Towards the end of April invigorating sea-breezes set in from the west, which gather strength as the season advances. Occasional showers occur in May, and the monsoon usually sets in early in June, attaining its maximum force in July, when 12 inches or even more of rainfall are occasionally registered in a single day. The annual rainfall averages 292 inches.